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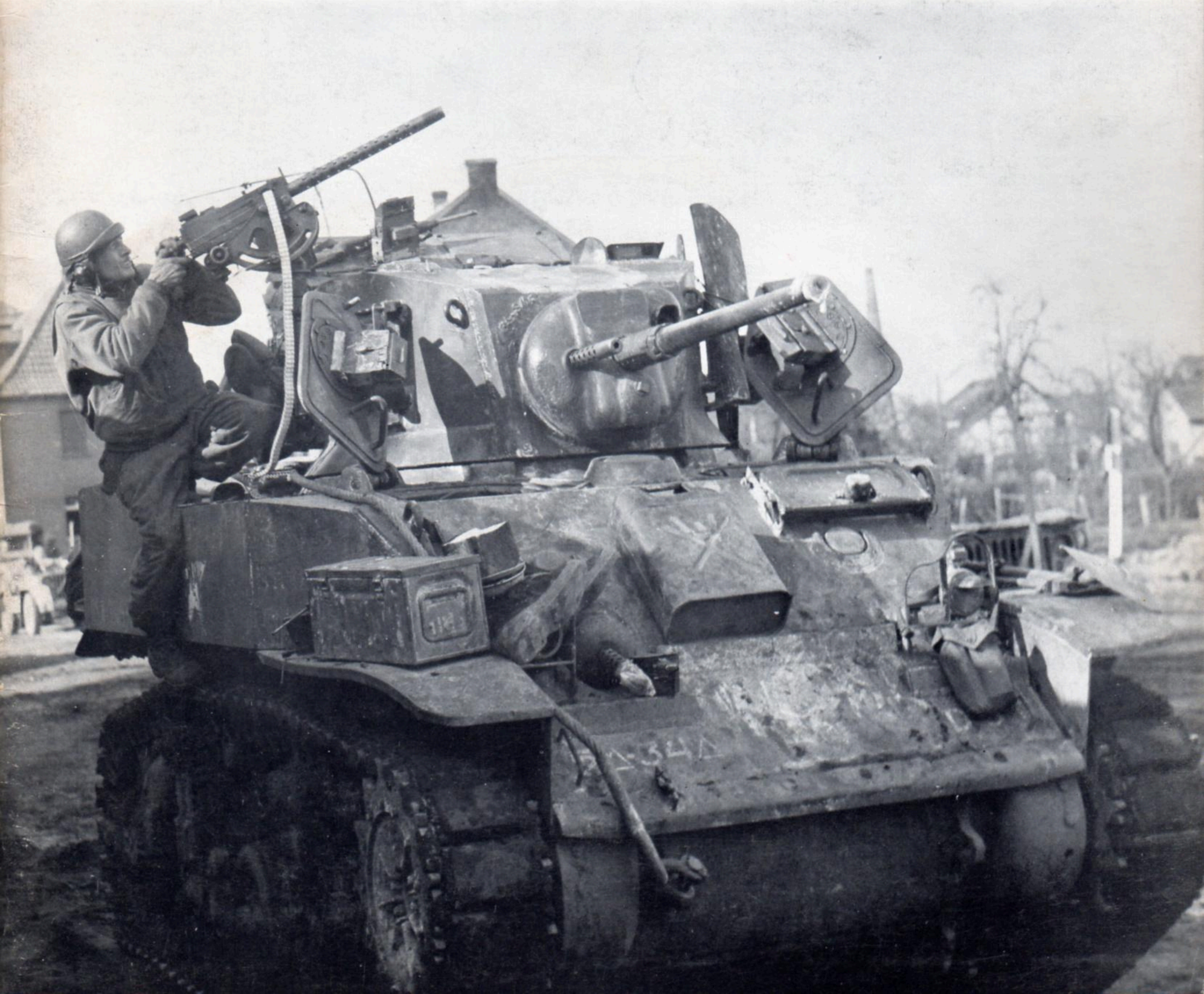
A MAGAZINE FOR MILITARY VEHICLE ENTHUSIASTS

Volume 5 Number 1



Muzzle Blast

LETTERS • COMMENTS • NOTES • CORRECTIONS • ADDITIONS

ARMORED CAVALRY UNITS

Gentlemen:

I am in receipt of Vol.4, No.12 and, as usual, it was enjoyable reading.

As it did cover something with which I have some familiarity, namely the piece on the armored cav unit, I thought some comments would be in order concerning some minor points, but yet points which should probably be made in light of the obvious high standards which you have set for yourself.

Principal among these is the designation of SP4 as Specialist Fourth Class, SP5 as Specialist Fifth Class and the obvious implication this has for SP6 and on up. As I understand it, when the specialist grades were first introduced, they were in inverse order, in that the higher one got, the lower the number. I also understand that at that time, they were designated Specialist Fourth Class, Specialist Third Class, etc. However, the current useage is simply Specialist 4, Specialist 5, etc. The 'class' designation has been eliminated.

For what its worth, the M-106 mortar carrier, while obviously based on the M-113 APC, as you note, is substantially modified due to the need of having to support the recoil, as well as the basic weight of the tube and rotator. The floor, therefore, is much stronger that in the APC. In addition, the top is different due to the fact that the mortar is normally fired from the carrier, thereby requiring more open space than the normal roof hatch gives from the usual APC. You have also noted the HE and Smoke capacity of the mortar but should not forget that it is very useful in an illuminating role.

The commentary on the M-114 is probably understated. From my own experience, it was one of the least reliable vehicles in the current inventory. The drive sprockets had a tendency to shear off and the steer/drive belts were a constant concern. They had a bad habit of hopping off with the result that more than one training accident occurred due to the right belt, for example, coming off, leaving the left still in place and causing the vehicle to make a sudden right turn. In addition, the shape of the bow is such that it is very hard to get out of the water if the bank is at all steep. That is in contrast to the M-113 which will climb out fairly well.

The commentary about having to retrain scouts to become tankers, due to the advent of the M-551, is true if the M-551 replaces M-114's. However, for the longest time in Europe, the TO&E used reflected the Light Tank, 90mm Gun as the armored vehicle to be used with the Cav Troop. There were, of course, none in the inventory so the M-60 was used in lieu. I would suspect that for the most part the biggest problem would be to convince the M-551 people that they didn't have the armor in front of them that they once had with the M-60. After all, the M-551 is officially an armored reconnaissance - armored assault vehicle. Your article only used the first part of the designation but the second part is equally important. One of the principal roles of the divisional Cav Squadron is security missions - advance guard, flank guard, rear guard. They have to have some punch in order to keep the enemy honest. In delaying the advance of an enemy force on the main body, their biggest job is to force the enemy to stop and deploy while the cav pulls out to the next good defensive position.

I note that the article on the Hungarian Armored Division uses the German military symbols. I would be surprised if more than a fraction of the readers really understand them. Perhaps an article would be in order.

You did make mention of requests from readers. I would be interested in seeing something on the 'schmall' turret designed for the 'Panther II.'. I have seen the two transitional photos such as appear in the Profile on the Panther, but nothing which actually shows the shape of the turret, such as an overhead view might provide.

With regard to CPT McLemore's proposal for a scout vehicle based on the M-551 chassis, it would seem to me that its biggest drawback would be its size. It is built to hold a four man crew, which is larger than a scout team. The vehicle itself is bigger than the M-113 and, of course, the M-114. If the criterion is reliability, there is hardly anything more reliable than the M-113 in the U.S. inventory. It would seem short sighted to skip by the M-113 in favor of even a larger vehicle as a basis for the scout vehicle. Rather, I would think that the better thing would be to look into the type of APC being designed by the French with an amphibious capability, but also a lower profile. I don't have numbers handy, but to my recollection, the height to the Sheridan deck was not much below the top of the M-113. I could be wrong on that as I am trying to recall the comparison after half a year since I last saw the two together.

However, taking the concept a step further, perhaps CPT McLemore under estimates the potential, given the premise of the M-551 chassis. He seems to think of the TOW as an either/or thing. There is no reason why such a vehicle couldn't mount the Dragon in the same way the British have their Swingfire, on the sides of the turret. Since it seems that the armies of the world, or at least the western world, are fixing on the 20mm as the main weapon for smaller armored vehicles, a combination such as this would give any such vehicle a tremendous punch.

Sincerely,

Stephen B. Patrick
Northfield, NJ

Gentlemen:

I don't wish to criticize in a world that is so changing, but....

In your recent article on the Armored Cav Troop, I think that you will now find that the Platoon does not now have the 4.2-inch mortar in it. These have been pulled back to Troop level.

Perhaps one reason is the supply problems of distance, or perhaps the young general with his own artillery could get into trouble with his mighty 60 rounds.

Keep up the good work, you have a fine magazine.

Sincerely yours,

(Name withheld
on request)

G2 AFV

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Cover:

Front: An M-5 Light Tank pictured during the advance into Germany. This vehicle is from the Light Tank ('D') Company of the 34th Tank Battalion, and the tanker is firing at a low flying German aircraft (and is not really posing). Note the stowage details, the home-made muzzle covers and the open escape hatches. Photo Credit: U.S. Army

Rear: A rather unusual photo taken at the White Motor Car factory in Cleveland, Ohio, in 1929. The vehicle is a 'militarized' version of the White Model 20-45 car being delivered to the representatives of the U.S. Army. Note the 'Holabird Q.M. Depot' license plate and the stenciled form of 'U.S.A.' number. The Army officer is a Major Laws and the man at the right is W. C. Walter White. Photo Credit: White Motor Car Company via R. Fines.

AFV-G2 is a magazine, published monthly for Military Vehicle enthusiasts, with the purpose of gathering and dissemnating information about Military Vehicles and their employment; to provide an opportunity for persons seriously interested in the history of Military Vehicles, in the modeling of these vehicles and associated equipment, and in the playing of Military Wargames utilizing miniature vehicles, to share ideas and items of mutual interest and to promote an interest and awareness in the subject of Military Vehicles.

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The Arab-Israeli War of 1973

Photo Above: Israeli M-60A1 Main Battle Tank on the Suez Front. Credit: Armor Magazine via the author.

by Col. Robert J. Icks Ret'd.

The General Situation:

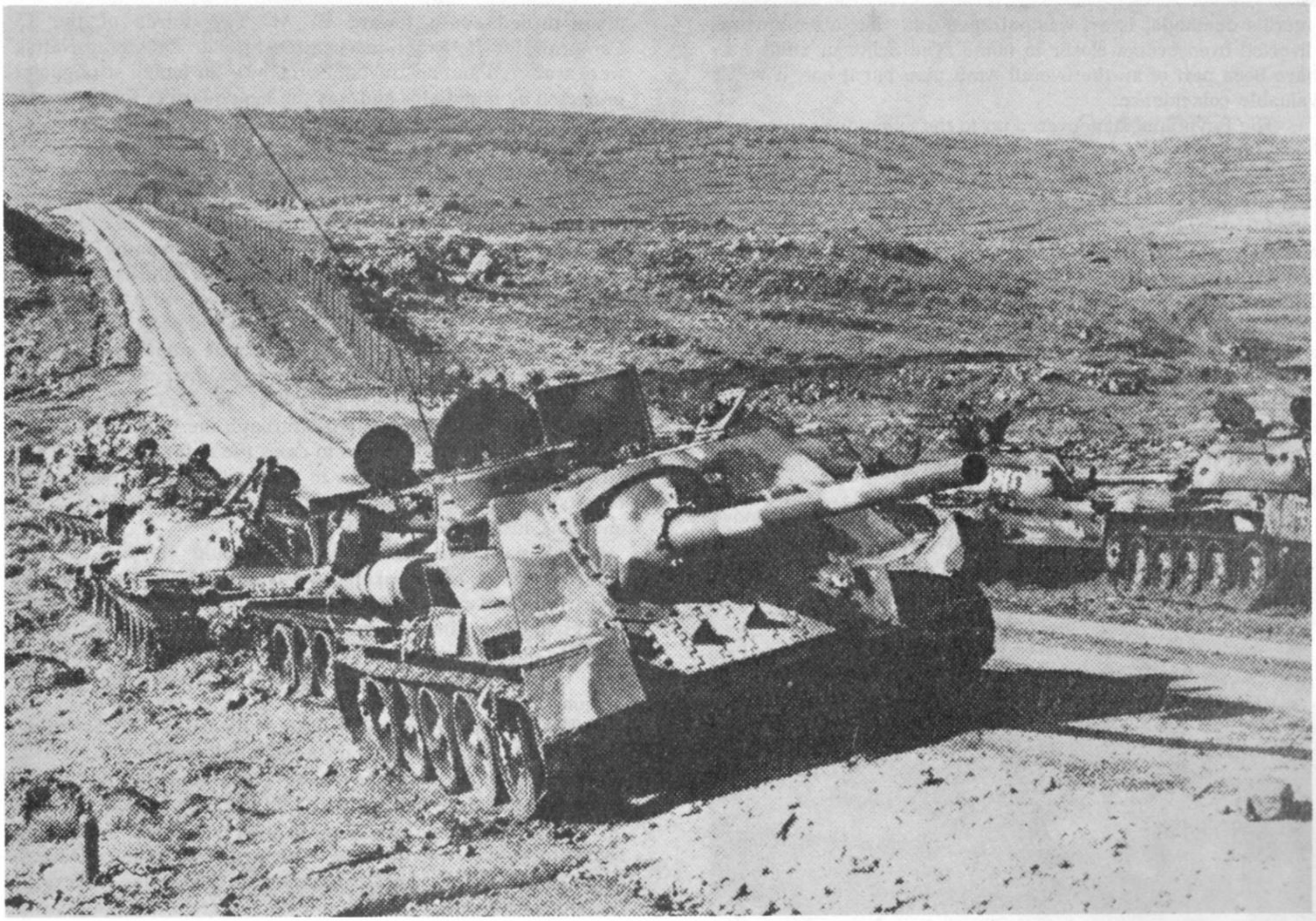
Defeats in 1948, 1956 and 1967 and a draw in 1969 convinced the Arab nations, led by Egypt, that Israel could not be defeated in a swift war of movement. Consequently it was decided that Israel could be defeated in a war of attrition because her resources were limited and because she had become over confident. Added to the contempt Israel had for the Arabs, Israeli intelligence had become spread so thin due to Palestine guerilla activity that it was blind to Arab abilities and intentions.

After taking the Sinai peninsula in 1967, the Israelis had mapped the entire area, including the preparation of 'going' maps which showed the best routes for moving armor. The peninsula is very mountainous in the south but this lessens gradually to the northward to become sandy and marshy as the Mediterranean is approached. The mountains are open to the western slopes at three passes: Mitla, Gidi and Khatmia. Israeli defenses were based on these passes and on fortifications built along the Suez Canal and known as the Bar-Lev Line. This included a network of paved roads, including two running parallel to the canal, and also many supply dumps.

The Bar-Lev Line was lightly held by some 3000 men. In early October 1973, these were reservists of the 116th Infantry Brigade, a unit of older men who were relieving the regular garrison. Behind the passes was a covering force of two armored and one mechanized division. Creation of this defensive line marked a change in Israeli policy which previously had stressed the offensive, based entirely on mobility and swift reaction to changes in situation. The line had underground oil storage tanks with pipes leading to nozzles for spraying oil over the canal. These were controlled by switches in each strong point, the oil then to be ignited by thermite grenades.

The Egyptians had built matching fortifications along the west bank of the canal, protected by some 130 ground-to-air missile sites and a spread-out air force. Scores of reinforced concrete hangarettes, each housing two planes and open at both ends, protected the aircraft from the kind of destruction on

Readers will note that some of the material presented in this article duplicates or conflicts with 'The Yom Kippur War' article series which is also appearing in AFV-G2. Such duplication or apparent contradiction is perhaps inevitable whenever two historians approach a similar subject using different sources. Due to reader requests and interest, we will present as many viewpoints of the 1973 Arab-Israeli Conflict as are available.



Above: Syrian SU-100 and other armor casualties along the Damascus road. Credit: U.S. News & World Report via author.

the ground which had crippled the Egyptian air force in 1967. But the biggest change had taken place in the Egyptian army since that war. It no longer was made up of aristocratic officers and an ignorant rank-and-file. Now its morale was high and training and general competance were good. Although the Israeli army was skilled and with high morale, it had become complacent.

The Egyptian attack plans for 1973 provided for an air assault beginning at sunset in order to begin the canal crossing at night. This placed the sun in Israeli eyes. A date was chosen which would provide moonlight at night and one when the water current in the canal would be suitable and finally, one when there would be a maximum of surprise for the Israelis. The date finally chosen was October 6th, because it combined all three factors, the last one that it was the Jewish holiday of Yom Kippur. It also coincided with the anniversary of a Mohammedan religious event psychologically significant in the Moslen calendar. The time of day for the attack required compromise since, in order to achieve surprise, a simultaneous attack on both fronts was desireable. The Egyptians wanted to attack late in the day so the sun would be in Israeli eyes as well as to take advantage of the short night. The Syrians wanted to attack early in the morning in order to have the sun at their backs. The final compromise was for 2:00 PM.

The Syrians were not notified of the chosen date until a day or two before. The Moroccan, Libyan, Saudi Arabian and Iraqui forces were expected to join-in, but it was accepted that the Jordanians were reluctant to do so. Israel was misled as to Egyptian troop activity because the Egyptians usually held maneuvers in the autumn. Embankments and fortifications newly thrown-up by the Egyptians were believed to be merely make-work for their troops. Information on Egyptian activity was developed by U.S. Samos spy satellites and passed-on to Israel but it was ignored as was that from their own observations.

On the border with Syria at the 1967 cease-fire line, Israel occupied the Golan Heights as well as a strongpoint on Mount Hermon which overlooked the entire plateau. The terrain on the Golan front slopes from the Golan Heights eastward down to the Damascus plain. It is flat and barren and littered with rocks punctuated by conical hills up to a hundred feet high. Here the Israelis had one understrength armored and one mechanized brigade which were split up into small packets along the front. Supply came from bases in Israel. The front comprised a series of bunkers and wire but at its most vulnerable portion north of Quinetra, there was also a maze of minefields and a wide anti-tank ditch.

A Syrian build-up had been observed but it appeared to be defensive in character. The Syrians had built three new defense lines to guard Damascus in addition to utilizing the natural defense barriers of the Saasa lava ridge astride the Damascus road. Syrian tanks and artillery had begun to move into these lines on October 1st, and Syria had already installed air defense missile sites. None of this was considered serious because Syrian artillery was placed to cover Syrian rather than Israeli territory and Syrian tanks were occupying dug-in positions.

During this period, Palestinian guerillas had held up a train in Europe, a train bringing Soviet Jews from Moscow to Vienna. They took hostages and demanded of the Austrian government the closing of the transit center at the Schonau Castle which was being used by Soviet Jews on their way to

Israel. When the Austrian government capitulated to the guerilla demands, Israel was outraged and her attention was diverted from events closer to home. The Schonau affair may have been part of an the overall Arab plan but if not, it was a valuable coincidence.

The Egyptians maneuvered up to the canal during daylight hours, but returned to camp only a third of the troops each evening. Tanks left near the canal were dug in and camouflaged. Canal-crossing equipment was crated, brought forward at night and placed into previously dug pits. Egyptian newspapers announced fears of an Israeli raid in reprisal for Schonau. Israeli air force reserves were called up on October 3rd, and some senior army officers were alerted but none above the rank of Colonel. The Israeli chief of staff wanted to call up army reserves but was overruled until Saturday, October 6th at 7:00 AM, when it became apparent that a Syrian attack was imminent. The U.S.S.R. launched an intelligence satellite to keep the Arabs informed of Israeli troop movements, the first of six launched during the next several weeks.

The Syrian Front:

Early on Friday, October 5th, Syrian armor began to move into offensive positions and Syrian artillery began to spread southward to cover the entire Israeli line. At 1:58 PM on Saturday, five Syrian fighter planes, followed by a second wave, attacked Israeli tanks in the north while their crews were at prayer. At 2:00 PM, a 55-minute Syrian artillery barrage by some 300 guns per division began ahead of a 700 tank and three augmented infantry division Syrian advance. The tanks were deployed in two columns of four tanks abreast on either side of the Damascus road southwest of Saasa. One column was headed for the main Israeli line north of Quinetra and the other headed southwest toward Quinetra. Another column of some 400 tanks moved along the road from Sheikh Miskin toward Rafid, accompanied by 7000 infantry in carriers. The Syrian forces were protected by mobile missile batteries made up of wheeled Saggers, Snappers and Swatters (NATO code names) and by tracked ZSU 23-4 and Gainful vehicles, distributed throughout the columns.

Above: A derelict Syrian BMP Armored Personnel Carrier. Credit: Army Magazine via the author.

Although handicaped by having the sun in their eyes, the first Syrian tanks passed over the Israeli bunkers, isolating them. A number of Syrian tanks were immobilized by tracks broken on the rocky terrain. The northernmost columns flowed to either side of Quinetra. The southern column from Sheikh Miskin split at Rafid; one part heading for Khushniye while the other turned south toward El Al. Two thirds of the 75 Centurions of the Israeli mechanized brigade defending Naffak were scattered and destroyed. Naffak was an Israeli strongpoint protected by minefields and was the headquarters for the front. Beyond Naffak, there was a bridge over the Jordan River.

The Israeli air force was the most effective defense force on this front for several days. Israeli air was controlled from a single command post in Israel and was shifted to meet the demands of the situation on both fronts.

Israeli tanks had been dug in with overlapping fields of fire. They took a heavy toll of Syrian tanks, but as the latter changed from column into line, Israeli forces were forced back by sheer weight of numbers. Still, close cooperation between Israeli armor and air was so good that tank commanders could call for air strikes only a few yards from their own positions. The Syrian column advancing north of Quinetra was equipped with dozers and flail tanks to get through the Israeli minefields as well as with bridging tanks to cross the anti-tank ditch. They attacked with the dozer tanks in the lead but these were easy targets for Israeli tanks, artillery and air; however, Israeli air and tank losses were considerable.

A Syrian helicopter assault on Mount Hermon late on Saturday succeeded in taking over Israeli positions on Sunday, depriving the Israeli forces of artillery observation and control and giving it to the Syrians. Six months earlier, a Syrian spy ring had obtained details of the Mount Hermon defenses, but in spite of its importance, only a handful of Israeli soldiers were stationed there.

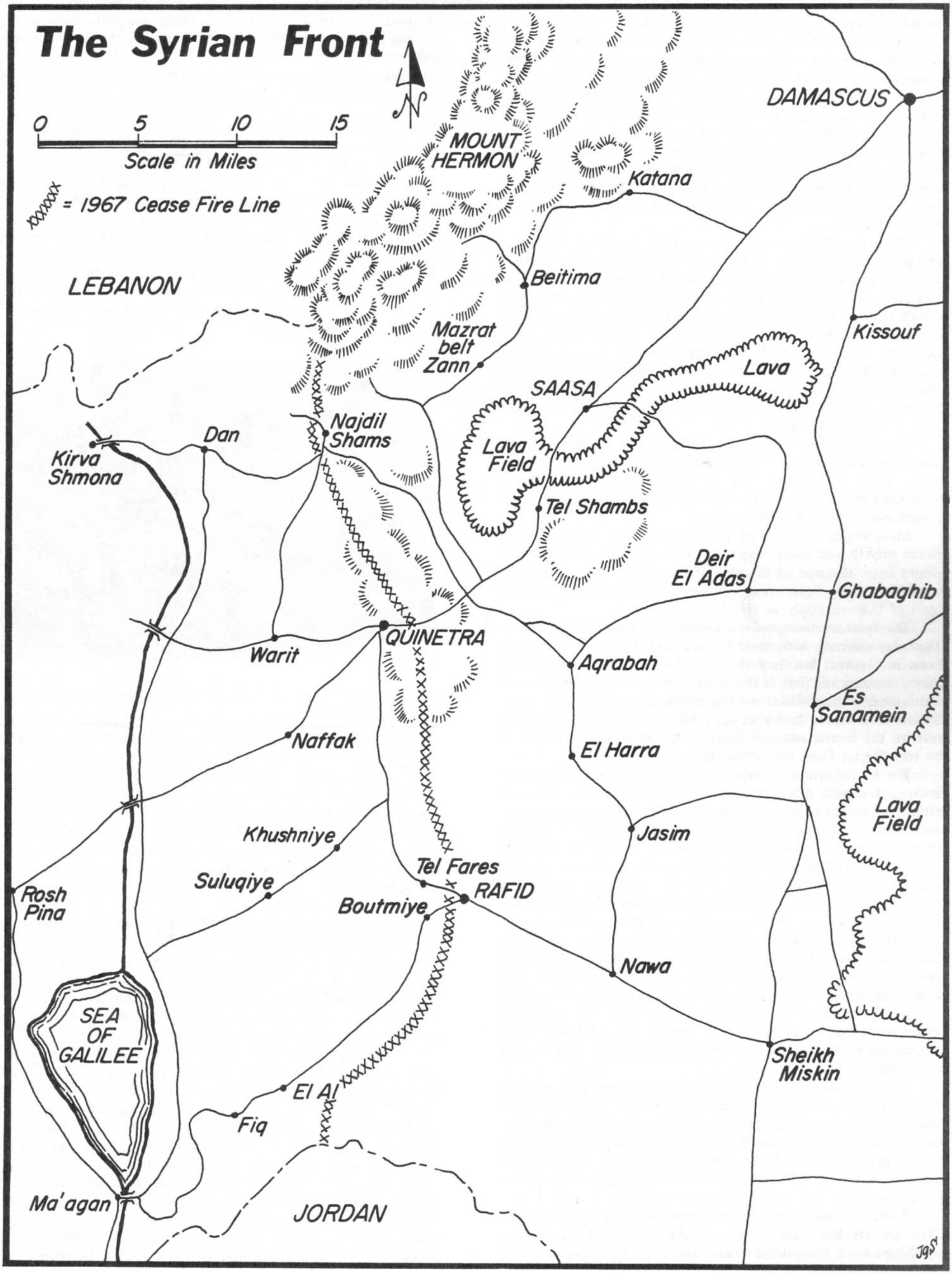
The Syrians regrouped during the night of Saturday, October 6th, aided by the infra-red equipment on their T-62 tanks. In the morning, they were ready to attack in line at Naffak. The Israelis held, and at 5:00 PM, the Syrians fed their 5th Armored Division of 200 tanks into the Naffak sector in a last effort to roll over the Israeli 7th Armored Brigade. After a two hour fire fight, they succeeded in occupying the ridge beyond Naffak and were only a few miles from the bridge over the Jordan River. The rearguard action being fought by the Israelis to buy time was slowing down the Syrians, who were taking losses from low-flying, napalm-dropping Israeli aircraft.

The Syrians again regrouped during the night, but Israeli reserves had been arriving during the night through Rosh Pina. These troops were fed into the line with their Super Shermans to back the now almost half destroyed 7th Armored Brigade. Tanks were shoved into the line as fast as they arrived and sometimes went into combat without their own officers, equipment and communications set-ups. Other Israeli units coming up through Ma'Agan backed the southern part of the line where the Syrians were ready to move against El Al.

Again on Monday night the Syrians regrouped but they appeared to lack fuel resupply and tank recovery capability. By now a large part of their organic divisional tanks were gone.

Early on Tuesday, October 9th, the Syrians launched an attack on Quinetra and three hours later on Khushniye. Both were stopped by the end of the day. During the night, the Syrians fired Frog missiles on Israeli civilian centers. In retaliation, and to interrupt Syrian logistics, Israeli air began bombing Damascus and other industrial areas inside Syria. With this, the Syrians began to withdraw anti-aircraft units to defend their capital. Israeli air sought these out as they moved rearward, destroying perhaps half of them. Having learned that Gainfuls moved after each missile firing, Israeli pilots were especially alert for them.

Israeli ground action also began late on Tuesday. Air strikes were succeeded by artillery fire which in turn was followed by an armor advance. Naffak was retaken but with serious losses because Syrian resistance was stubborn. This area had many small farms with stone fences which Syrian


The Syrian Front
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Najdil Shams
Dan
Kirva Shmona
Lava Field
Tel Shambs
Deir El Adas
Ghabaghib
QUINETRA
Warit
Aqrabah
Es Sanamein
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El Harra
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Khushniye
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Suluqiye
RAFID
Rosh Pina
Boutmiye
Nawa
SEA OF GALILEE
Sheikh Miskin
El Al
Fiq
Ma'agan
JORDAN
JGS

infantry utilized as anti-tank missile positions.

Realizing that Iraq and Jordan probably would enter the war and get troops to the front, a holding operation was taking place on the Sinai front, while strong efforts were made to subdue Syria first. And, as expected, Iraq entered the war on Wednesday and began moving troops westward but it would be several days before they could get to the front. Not too many Iraqui would be sent in any event because of problems at home with the Kurds and with Iran. Jordan mobilized but made no commitment for the time being. Moroccan troops already had been encountered by the Israelis along the lower ridges of Mount Hermon.

More Israeli troops now being available, they opened a two-pronged offensive from the west against Quinetra. Another attack was mounted from Naffak toward Rafid and a third was started toward El Al, all aimed at threatening Damascus. The attack at Khushniye lasted all day and was successful though Syrian anti-tank missiles again caused armor losses. The Quinetra attack began in the afternoon and was soon over, relieving the Israeli garrison which had been surrounded since Sunday night. Israeli air caught the retreating Syrian armor northeast of Quinetra on Wednesday, October 10th, leaving a trail of burned-out hulks.

The Israelis were ready to continue the advance toward Saasa and Deir el Adas by the morning of Thursday, October 11th. Four helicopters full of Syrian commandos were ambushed as they tried to land behind Israeli lines as a result of Israeli monitoring of Syrian radio.

Meanwhile, the United States had been putting forth peace efforts and there was some fear that the Soviet Union would enter the war on the side of the arabs. But, as matters turned out, only Soviet resupply began, to be followed by the start of U.S. resupply to Israel.

The Syrians attempted a counterattack toward Quinetra on Thursday morning with their 1st Armored Division, which had been in reserve, but Israeli armor looped southward behind them, crossing the first of the three Syrian defense lines before Damascus, a line which swung north from Rafid. By now, Syrian tank losses had exceeded 800. With Syrian forces in retreat, the Israeli advance slowed and Israeli armor began to be transferred from the Syrian front to the Sinai.

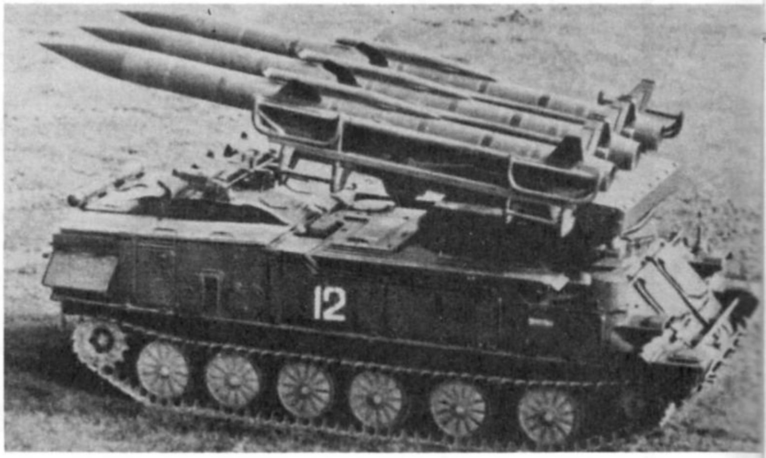
The Iraqui armored division of three brigades had arrived in Syria and was moved to the southern flank from where it attempted an advance on October 12th. Jordan entered the war on Saturday, October 13th, and their 40th Armored Brigade began to move northward toward Sheikh Miskin. By October 15th, an Israeli task force had moved into Saasa but was forced out the next day through lack of resupply, a Syrian counterattack and the threat of being struck in the flank by the Moroccan troops on the lower ridges of Mount Hermon. By Tuesday, October 16th, the Iraqui armored division and some Saudi Arabian troops together forming an Arab Legion took position around Kafr Nasij with the Jordanians at Jasim. The Israelis caught the Arab Legion in a dawn ambush while they were still moving into position, destroying 70 tanks in 90-minutes with artillery and air strikes around Kafr Nasij, moving on to destroy another 30 at Kafr Shambs. The Iraquis then retired to Deir el Adas.

The Jordanians had advanced northwestward in an effort to retake Quinetra, expecting Syrian and Iraqui support. They were outflanked near El Harra and had 22 of their 80 tanks destroyed. They then retired to Jasim. The Syrians settled into their prepared defense lines, protected by missile batteries and the Israelis contented themselves with long range artillery fire on Damascus.

Rafid had been taken by the Israelis by noon on October 21st. On the following day, an Israeli helicopter attack with combined arms recaptured Mount Hermon. They Syrians tried desperately to retake it but failed. There was little more activity on this front and on Saturday, October 27th, the ceasefire went into effect. The Syrian army had fought well but politics at the top had caused frequent changes of chief of staff, which had not helped the conduct of the war.

The Suez Front

In the meantime, beginning at 2:00 PM on October 6th, the same day as the Syrian front had erupted, the Egyptians began their advance with two armored and two infantry divisions in the first wave, holding back their air power. Two explosive charges laid by Egyptian frogmen to break the sandbanks of the Suez Canal were set off, marking the beginning of the assault. The Egyptian attack began with four bands of artillery fire for 53-minutes from a thousand guns concealed in the sand dunes. During this time, small groups of infantry crossed the canal in assault boats powered by outboard motors and momentarily dug-in in planned positions.

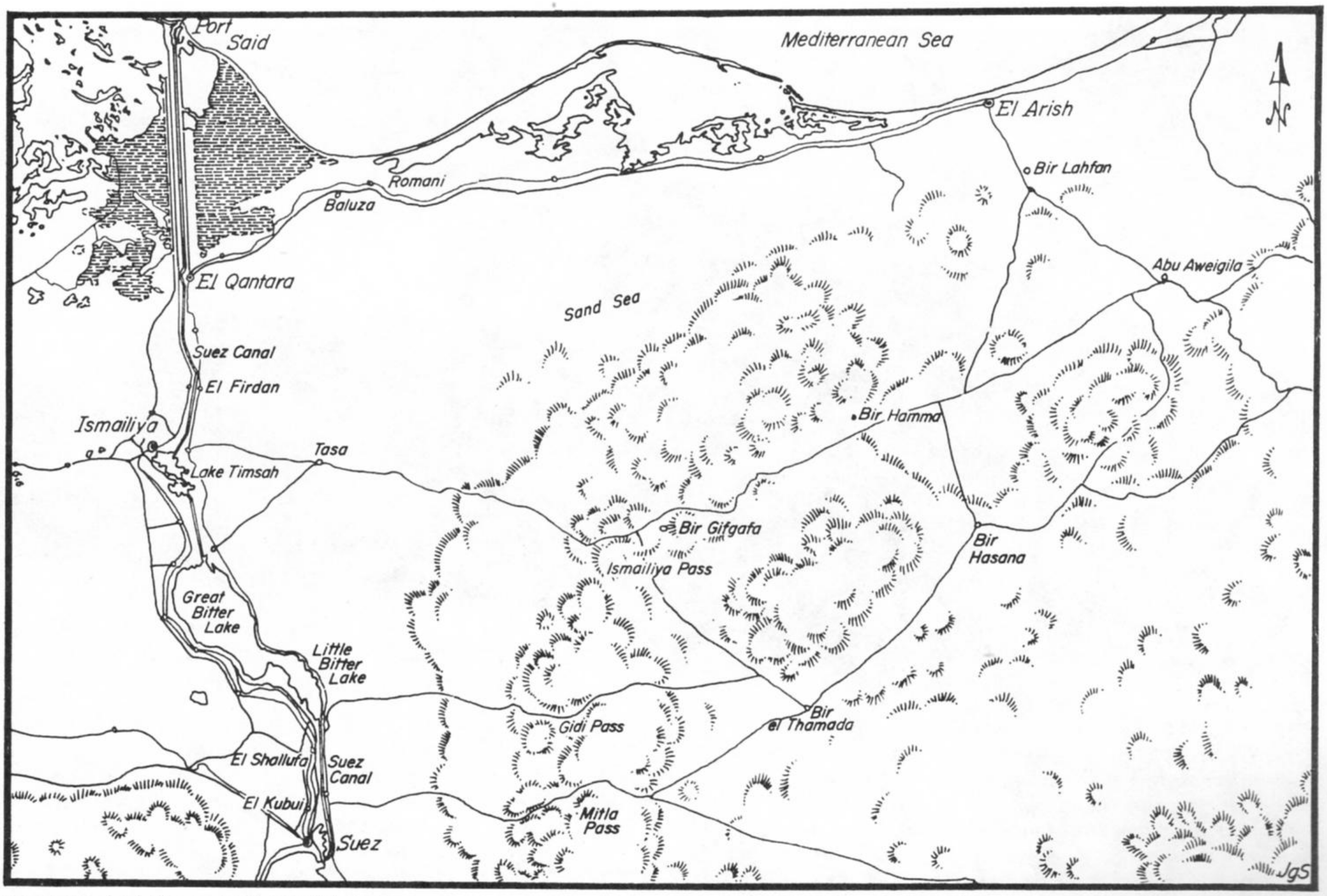


Above: Soviet SA-6 'Gainful' of the type used by the Arabs. Credit: Militar Technik

Egyptian patrols previously had discovered the nozzles for spraying the canal with oil and had sent commandos over several nights before the attack to seal the nozzles with cement. The Egyptian 2nd Corps crossed below El Qantara and around Ismailia and at El Ferdan between the two. The 3rd Corps were to cross south of the Bitter Lakes and north of Suez. In all, 10 bridges and 50 ferries were established. There was no wind and the dust clouds remained stationary, acting as screens. PT-76 amphibious tanks led the way at Ismailia and at two other crossings north of there.

Sand embankments up to 60 feet high had been built up by the Israelis on the east bank of the canal. Some of these were reduced by the Egyptians through the use of high pressure water hoses. The 2nd Corps got across on schedule but the high banks and terrain difficulties prevented the use by the 3rd Corps of pontoon bridges. Their armored vehicles had to back up to Ismailia and then rush 30-miles south.

The Egyptian infantry used scaling ladders of rope and bamboo. The first waves carried portable anti-tank and anit-aircraft missiles having night vision devices. These troops were then carried on armored personnel carriers to seek out Israeli tanks and artillery behind the Bar-Lev Line, reaching a depth of eight to ten miles before they dug in, bypassing the Israeli strongpoints on the line. Each unit, as it cleared the canal, planted an Egyptian flag to mark its completion of this phase. These advance troops were expected to capture the parallel roads and to hold for 12-hours until tanks and artillery could cross the canal on bridges made with tracked and wheeled pontoon-carrying and laying vehicles; however, they



never reached the second parallel road.

The second infantry wave was to attack the Israeli bunkers on the Bar-Lev line. Some of the carriers used by the first wave had planted night flashing markers at the Israeli bunker openings. At the south end of the canal, 50 helicopters, each carrying 28 men, landed to attack the Israeli anchor position south of Port Tewfiq with flamethrowers. At the same time, helicopters carried paratroopers to Mitla Pass, Bir Gifgafa, Ras Sudar and Sharm el Sheikh, all wasted because they were spread too thin.

Control of this set-piece operation was in Cairo. There was no overall field commander; each Corps commander reported separately to Cairo, a fact which was to have considerable bearing on subsequent events.

Egyptian air power hit Israeli air bases at Bir Gifgafa, Bir el Thamada and Tasa, doing considerable damage to runways. A few Israeli planes attempting to attack the Egyptian crossings suffered losses from Egyptian SA-6 and ZSU 23-4 vehicles. Because most of the Israeli air force was operating over the Syrian front, the Israeli 14th Armored Brigade of 230 tanks, mostly Pattons, lacked protection for its tanks. A fourth of their tanks were scattered and dug-in near the Bar-Lev Line and most of these were wiped out by Egyptian ground missiles. By Sunday, half of the brigade's tanks were gone.

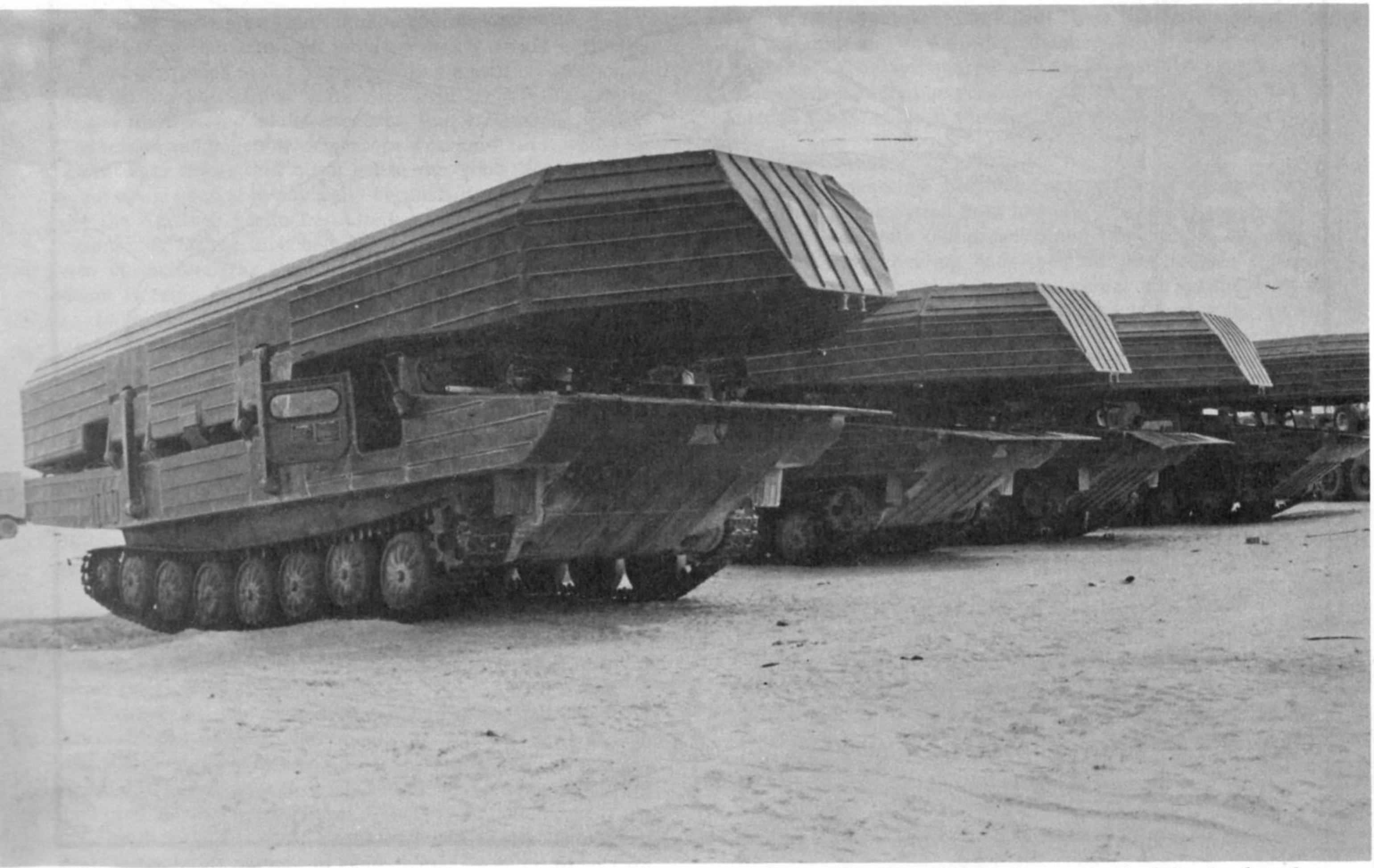
Egyptian helicopters also ferried commandos behind Israeli positions at Baluza northeast of Qantara on the night of October 6th, but many helicopters were shot down and the few that landed were easily disposed of. The Egyptian objective had been to insure the capture of the two parallel roads behind the canal, the forward one of which was for artillery movement and the rear one for supply.

Two Egyptian bridges were destroyed on the night of October 6th, but were quickly repaired. Israeli reserves were beginning to arrive and the supurb Israeli repair service was working to return damaged tanks to combat. By Monday night, Egypt had some 600 tanks east of the canal facing the Israeli 5th Infantry Division with 100 tanks plus the battered 14th Armored Brigade and the 190th Armored Brigade. Most of five Egyptian infantry divisions were across the canal. North of Qantara, it was necessary for the Egyptians to rely on infantry because of the soft and marshy ground.

Coordination between the Arab allies began to disappear after the first few days. Released from the Syrian front, Israeli air began again to hit the bridges over the canal, but the bridges were easily repaired and were protected by smoke and heavy anti-aircraft fire. Israeli artillery was more successful than Israeli air in hitting the bridges due to pre-war targeting and mapping but even so, there were occasional shellings of their own Bar-Lev Line and some of their armored units. Part of this, however, may have been due to Egyptian activity at Israeli bunkers where they were using flamethrower tanks to burn out Israeli garrisons marked by the night flashers previously planted by the Egyptian APC crews on the first day.

The Israeli 190th Armored Brigade undertook several attacks early on Tuesday, October 9th, against the Egyptian 2nd Corps between Tasa and the canal, but these attacks were piece-meal. Some 34 tanks were hit and a number captured. The Israelis had not yet learned respect for the Egyptian missile-carrying infantry who frequently lay concealed in order to fire on Israeli tanks after they had passed. Another Israeli sortie from Mitla Pass also was repulsed. Additionally, Israeli artillery was handicaped because of losses of forward observers who had been with dug-in tanks.

It was in favor of the Israelis that the Egyptian operation was a set-piece without flexibility. After the crossing of the canal, the Egyptians seemed reluctant to move out from under their fixed missile umbrella, whose range extended about to the second of the two Israeli parallel roads. Only a few Egyptian



Above: Soviet PT-8 Pontoon-Laying Tracked Carrier based on the K61 Personnel Carrying Vehicle and used by the Egyptians. Photo Credit: Israel Sun Ltd. via the author.

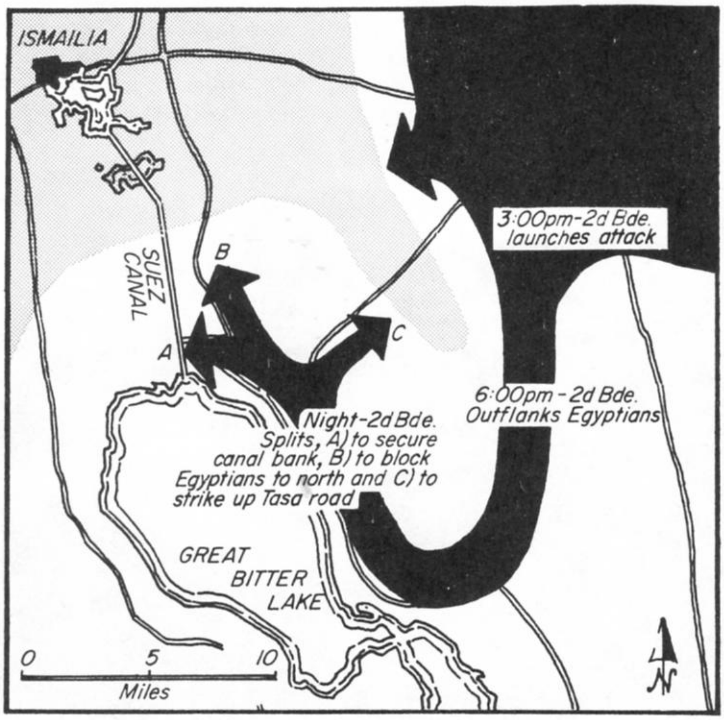
mobile anti-aircraft units had been moved to the east bank. Although by Wednesday, October 10th, the Egyptians had been successful in establishing a firm bridgehead all along the canal, it was only about ten miles inland instead of the twenty miles originally planned. The plan had called for a halt to consolidate and regroup and at this point, the Egyptian commanding general and his chief of staff argued, the latter wanting to push on while the former was cautious. Some of his caution was displayed in retaining a reserve of 500 of the original 1200 Egyptian tanks west of the canal to defend against a possible Israeli airborne envelopment.

The Egyptian high command was not alone in arguing over tactics. The Israeli government called up six retired generals on October 10th, but in some cases to serve under generals who earlier had been junior to them. Up to 1967, the Israeli army had been free of politics. The retirement age of 45 was designed to keep officers from digging in so that young ideas and new blood could regularily be brought in. But the result was just the opposite of that intended, since civilians controlled the military. After 1967, the Chief of Staff and other high ranking officers were stepping into top political and diplomatic jobs after retirement from the army. Not only were and are the generals striving for political power, but those in power politically favored certain officers who remained in the army. Other officers resigned in bitterness because of being passed over for promotion. Some 20% of the generals had become active in politics after retirement and continued being active even after being called back into service in 1973, because they felt certain they soon would be back in civilian life. This state of affairs was to have a very considerable effect during the course of the war and since, as will be seen.

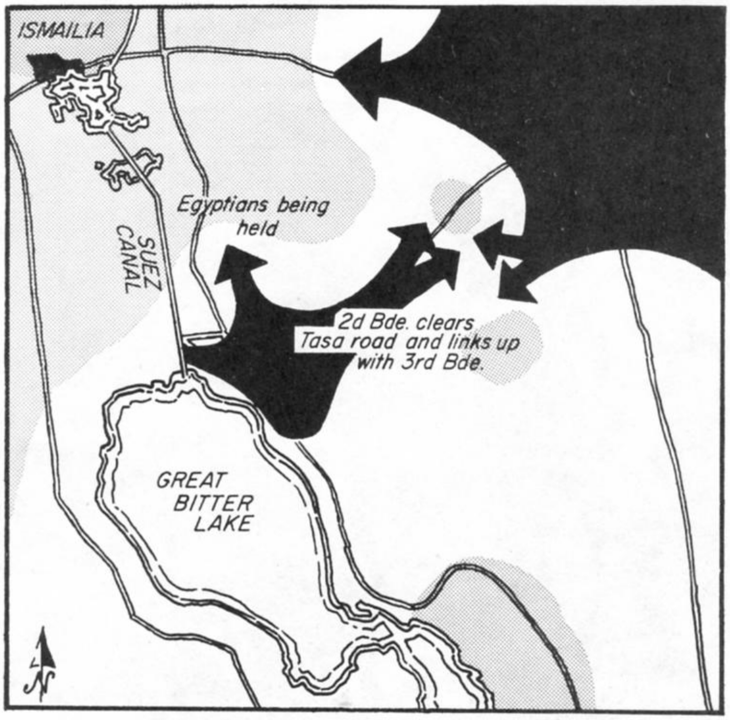
On Thursday morning, the Egyptians decided to begin to bring their remaining 500 tank reserve across the canal, in part politically motivated for the purpose of taking the pressure off the Syrians. The movement was observed by the Israelis because of the clouds of dust. As these Egyptians were moving east, more Israeli armor was moving west. The problem now arose as to how best to meet the situation. The Israeli field commander saw the expected Egyptian assault as an opportunity to destroy Egyptian armor because it probably would have to leave its infantry anti-tank missiles behind. However, a subordinate general, newly called up, had once been the field commander's superior. He wanted to make a surprise crossing of the canal but was overruled by the Israeli Chief of Staff because it appeared too much of a gamble. By now, the Soviet Union had begun to resupply the Arabs but the United States had not yet made an effort to resupply Israel.

The subordinate general mentioned above had been called back into service on October 5th and the next day, his division was mobilized. It comprised three armored brigades, two paratroops brigades, an artillery group and engineers with dozers and bridging equipment. His units had moved 150 miles without tank transporters and in moving west, they had been attacked by the Egyptian 21st Armored Division from the Egyptian 2nd Corps. Although they caused some 110 Egyptian tank casualties, the 300 Israeli tanks had also suffered losses.

The Egyptians, with their additional tanks, made the expected advance in a two-pronged offensive against Mitla and Khatmia Passes, losing about 65 tanks on October 13th. They renewed their offensive on Sunday, October 14th, a dawn attack with an estimated 1000 tanks, preceded by a 90-minute artillery bombardment and air strikes. This main threat on October 14th shifted the point of attack toward Gidi Pass. However, released from the Syrian front, Israel had been moving more and more


ISMAILIA
SUEZ CANAL
B
A
C
3:00pm-2d Bde. launches attack
6:00pm-2d Bde. Outflanks Egyptians
Night-2d Bde. Splits, A) to secure canal bank, B) to block Egyptians to north and C) to strike up Tasa road
GREAT BITTER LAKE
0 5 10
Miles
N

The Israeli Crossing of the Suez Canal, Phase 1.



The Israeli Crossing of the Suez Canal, Phase 2.

armor westward through the passes so, without a deep enough bridgehead for adequate maneuver, the Egyptians were halted. The first wave of 150 tanks was halfway between Gidi Pass and the Little Bitter Lake when it was wiped out within an hour. A second wave of the same number of tanks, plus self-propelled guns, also was destroyed. By afternoon, the Egyptian attack was broken. Toward evening, an Israeli task force, guided by 'going' maps, cut off the retreat of the survivors, destroying more Egyptian armor and artillery during the night without loss to itself.

A weak point between the Egyptian 2nd and 3rd Corps was discovered on October 14th and the proposed Israeli plan for crossing the canal finally was authorized. An additional objective now was the capture intact of an Egyptian SA-6 missile battery in order to study the radar control so that a method of jamming could be devised.

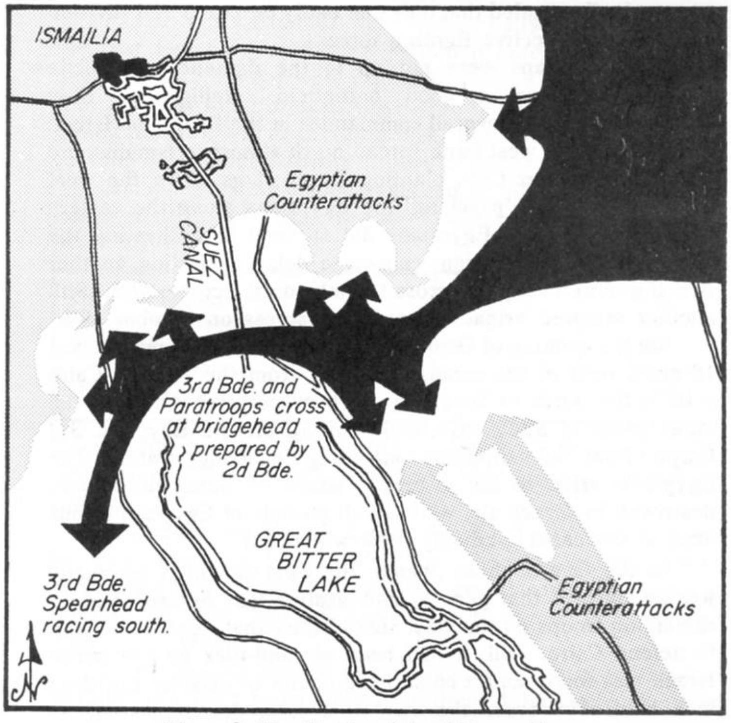
There was a paved road leading from Tasa southwest to the northern end of Great Bitter Lake where it joins a north-south road paralleling the canal. At the north end of the lake was a 'Y' junction, the third road leading northwest to the canal. About ⅔ of a mile north of this 'Y' junction was a 'T' junction where another side road ran due west to the canal. Between the two side roads, the Israelis earlier had built a large parking area surrounded by earthen banks, with a marked weak spot in the brick revettment on the canal side.

The plan for the crossing operation was for the Israeli 1st Armored Brigade north of Tasa to make a westerly advance as a feint at 5:00 PM on October 15th toward Ismailia. The 2nd Armored Brigade was to swing south over the dunes at 6:00 PM in order to reach the north-south road. Then, after dark, it was to turn north so as to be in position to prevent the Egyptians from moving south to block the planned canal crossing

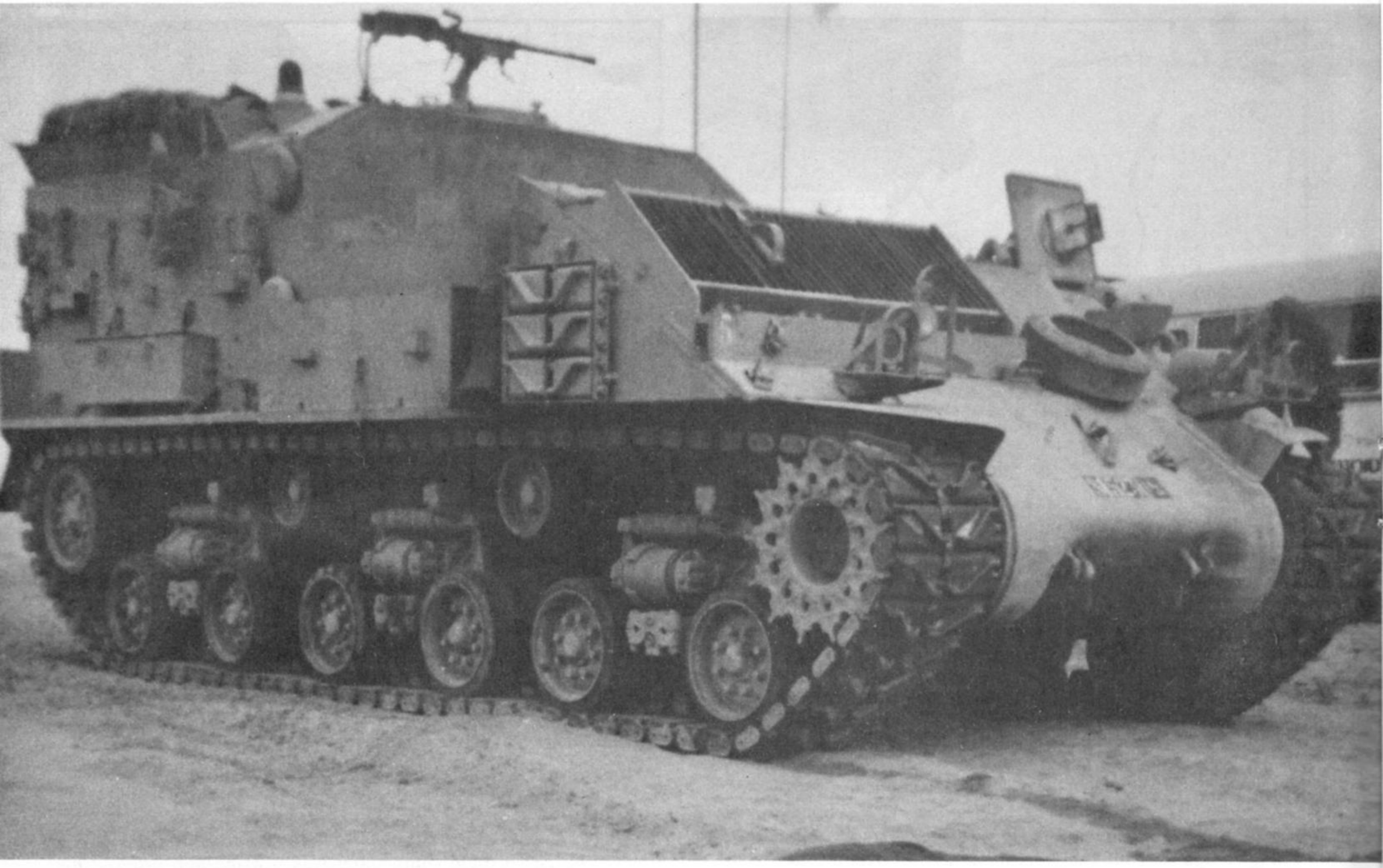
The operation began on schedule. After passing the 'Y' and 'T' junctions, the 2nd Armored Brigade then became involved in a tank battle which was to last off-and-on for two days, with heavy casualties on both sides.

The 3rd Armored Brigade was waiting on the Tasa to Great Bitter Lake road behind a brigade of paratroops in halftracks and carrying rubber rafts. The armored brigade itself carried self-propelled rafts and pulled barges to ferry tanks across the lake. Several hundred paratroopers started across the lake beginning at dusk. But by 1:00 AM on October 16th, the crossing was two hours behind schedule but fortunately there was little resistance on the west bank. By 6:00 AM, the tanks of the 3rd Armored Brigade had begun to cross on their rafts. Once on the other side, they began cruising about, calling for Israeli air cover. By 9:30 AM, 30 tanks and 2000 men were over but by then the crossing was four hours behind schedule.

The Israeli field commander was worried and ordered his task force commander to dig-in, but he refused to do so. On the night of October 16th, the Egyptian 2nd and 3rd Corps both counterattacked northeast of the Great Bitter Lake in what became known as the Battle of the Chinese Farm. The Israeli 2nd Armored Brigade blocked the Egyptian attacks successfully


ISMAILIA
Egyptian Counterattacks
SUEZ CANAL
3rd Bde. and Paratroops cross at bridgehead prepared by 2d Bde.
GREAT BITTER LAKE
3rd Bde. Spearhead racing south.
Egyptian Counterattacks
N

Phase 3: The Battle of the Chinese Farm



Above: Israeli 'Ambutank' converted from older Sherman Self-propelled Gun. Credit: Mordechai Dessaur via R. P. Hunnicutt.

while the 3rd Armored Brigade, now completely across the canal, was being broken up into small, independent raiding groups heading north and south to destroy Egyptian missile bases so that Israeli air could operate more freely. At the same time, with air support, Israeli forces from Gidi and Mitla Passes were squeezing the Egyptian 3rd Corps, two divisions of which were so badly mauled that only one badly outnumbered division remained an effective fighting force.

The Egyptians were not up to the demands of mobile warfare, and lacked good battlefield intelligence. They especially lacked an overall commander in the field. The Israeli task force on the west bank spread north almost to Ismailia and south toward Suez City, planting Israeli flags along the west bank of the canal, 'psyching' the Egyptians along the eastern bank. However, the Egyptians did succeed in infiltrating the area near the 'T' junction, causing a delay in getting another Israeli armored brigade across the lake until October 18th. Still another armored brigade was moved across on October 19th.

On the evening of October 21st, the Israeli bridgehead was 18 miles west of the canal, extending from the Ismailia-Cairo road in the north to Suez City, with outposts at Abadiya, ten miles south of Suez, effectively cutting off the Egyptian 3rd Corps from all supplies, including drinking water. The Egyptians tried to lay a bridge south of Suez but it was destroyed by Israeli air, while small packets of Egyptian troops west of the canal gradually were wiped out.

In the face of these events, the Egyptian high command was so alarmed that general mobilization was ordered and all remaining troops on the west side of the canal were withdrawn to defend Cairo. Still, it had been nip-and-tuck for the entire Israeli task force, and it could have ended in disaster but their luck held. However, the operation later led to wrangling between the task force commander and the Israeli Southern Front commander. The task force commander accused the Army high command of delaying reinforcements, thus preventing the destruction of the Egyptian 3rd Corps and the bottling up of the Egyptian 2nd Corps. The contraversy also took-in criticism of the Bar-Lev Line. Two factions developed... one held that the line had robbed Israel of mobility and should never have been built. The other held that plans made by the Chief of Staff had failed to provide adequate mobile forces behind the line and behind the passes. In the end, the Southern Front commander was replaced, after he disputed the claim of the task force commander that he, the task force commander, had originated the idea of such a canal crossing and had developed it as early as 1968. The weak spot in the parking lot wall gave some credance to the task force comander's claim.

An Arab oil embargo was announced on October 17th. The United Nations met to discuss a ceasefire after the United States and the Soviet Union had reached a ceasefire agreement. In spite of British and French efforts before the UN ceasefire vote was taken, the agreement contained no means of enforcement. The UN met again on Sunday, October 23rd. Soviet resupply increased, and fears of a Soviet intervention on the side of the Arabs caused the United States to announce a worldwide military alert. A ceasefire finally was agreed on, to become effective on October 27th; this saved the Egyptian 3rd Corps from annihilation.

The Israelis had been succesful in retaking Mount Hermon on the Syrian front on October 22nd. On the Sinai front, the UN inexplicably failed to notify the UN Truce Supervisory organization of the ceasefire. As a result, Israel continued to pour supplies across the canal and had cut the main road between Suez City and Cairo. Additional dug-in Egyptian T-34 tanks continued to be wiped-out by Israeli air because Egyptian missiles no longer were a threat. The Egyptian 3rd Corps was completely cut off, but the Israelis, under United Nations pressure, permitted blood plasma to be trucked in on October 25th and later water and food, the trucks being driven by UN personnel.

Comments

Estimates of the strength of the two sides vary. The nearest estimates appear to give the Arabs a potential Mobilization strength of over 600,000 men, and the Israelis with perhaps 320,000. Armor and aircraft strengths were approximately as follows:

	Arabs	Israel
Aircraft	1250	458
Tanks		
T-54/T-55	2700	150
T-62	100	---
T-34/85	50	---
Sherman	---	150
Centurion	100	850
M-48 Series	---	400
M-60A1	---	150
Total Tanks	2950	1700

Most of the armor used is well known but there were also some which are less well known. On the Arab side, there were Soviet T-62 tanks, SU-100 self-propelled guns, SU 57-2 and ZSU 23-4 anti-aircraft vehicles, the SAM (or Goa), Ganef, Gainful (or Strela) and Frog missile carriers, both wheeled and tracked APC's such as the BTR-60P, the new BMP-76PB and the older BTR-152's as well as pontoon-laying vehicles. The Israelis captured an improvised Syrian SP mounting a 122mm gun on an old T-34 chassis and an Egyptian 100mm AT gun similarly mounted. Why it had been found necessary to improvise these to add to the considerable volume of Soviet materiel is puzzling.

On the Israeli side, in addition to the Shermans, Centurions, M-60A1's and upgunned M-48's, there were the U.S. M-107, M-109 and M-110 self-propelled guns and upgunned Soviet T-55's called Ti-67's. Also there were 'Ambutanks', L33 self-propelled guns and 'cherrypicker' observation tanks, all converted from older Shermans. Armored cars included French Panhard H60's and H90-7's.

Israeli tanks outranged Arab tanks by perhaps 800 yards. Additionally, they possessed sophisticated fire control equipment while the Soviet vehicles, except for the T-62, had no rangefinders. The Israeli tankers referred to range estimating without rangefinders as 'Eyeball Mark I.'. Because tanks halted to fire, they tried to take advantage of folds in the ground (hull-down positions) for protection, concealment and above all, for greater accuracy. Israeli tanks had an advantage in this because they were able to depress their main armament 10° or more, whereas, because of the turret shape of the Soviet tanks, the Arabs could depress only about 4°. Soviet tank interiors were cramped and hot and their tank engines suffered from overheating. Also, Soviet tanks, except for the T-62, used solid shot and Israeli tank crews had a choice of several types of ammunition, among them APDS and HEAT. The accuracy of the 115mm smoothbore gun on the T-62 fell off rapidly at longer ranges but the vehicles had the advantage of a 360-mile operating radius. Most Soviet tanks carried jettisoin fuel tanks on the rear deck and these created a considerable fire hazard in combat. In addition, the magnesium armor of the BMP-76 APC was a fire hazard. It was averred by a U.S. senator that the M-60A1 tanks 'brewed up' from the flammability of the hydraulic fluid used in the turret traversing mechanism but this was the first complaint about a fluid used for many years and in several wars.

Arab anti-aircraft guns and missiles, whether stationary or mobile, were positioned in echelon, each layer of which was overalpped by those with greater and greater ranges. Their infantry carried light versions of the Soviet 'Sagger' missile as well as individual RPG-7V rocket launchers. Israeli infantry later obtained the superior U.S. TOW missile.

Both during and after the war, there were conflicting claims and counterclaims as to losses. In fact, one Israeli authority said with tongue in cheek that the Arabs had learned how to fight from Israel, and the Israelis had learned to lie from the Arabs. But after squeezing out the exaggerated figures reported during the war in the light of later information, the losses appear to have been about as follows:

	Killed and Wounded	POW	Armor Losses	Aircraft Losses
Israel	5122	400	420	115
Arabs	9000	7995	1270	671

But figures such as these can be misleading. Although Israeli losses in manpower were much less than those of the Arabs, they must be related to a population of about 3 million as against an Arab population of some 40 million. And in armor losses, the Israelis repaired some 2700 tanks and returned them to combat in the first ten days, so the table obviously refers only to armor destroyed. Israeli logistics were highly effective. Engine attrition was high but the Israelis had stockpiled engines near the front for just such a contingency. Much cannibalization went on. Egyptian logistics were adequate but Syrian logistics were poor. The Arabs presumably repaired and returned to combat some of their damaged armor but the amount is not known.

It is rather curious that neither side made any use of smoke although both had the ability to do so.

Israeli tank casualties were mainly caused by missiles in the first few days until they combined defensive methods to overcome them. Some were caused by enemy tank fire but very few were lost to air attack. Most Arab tank losses were due to Israeli tank fire and to aircraft attack. There is thus no evidence that the missile has destroyed the effectiveness of armor or air.

Some interesting comparisons can be made between Israeli losses in 1973 as related to total losses in 1967:

	1967	1973
Officers Killed:	20%	24%
NCO's Killed:	43%	71%
Privates Killed:	37%	5%

By way of contrast, U.S. officers killed in World War II. represented 7% of the total, while in Vietnam, the percentage was 9%.

In aircraft, the Israelis had a 55 to 1 kill ratio (6 to 1 in air to air) compared with 20 to 1 in 1967. Their losses were 106 to ground fire and 9 in air-to-air combat, two thirds of the totals in the first five days. The U.S. had an 8 to 1 kill ratio in Korea and 2 to 1 in Vietnam.

To summarize, Israeli tactics were based on the offensive but initially they were forced to fight defensively. Politics, never previously a problem, had crept into the Israeli military

Continued on Page 33

Historian's Notebook

BY JAMES STEUARD

Finding Orders-of-Battle
Part III. - World War II. German

In this issue, the Historian's Notebook continues its series on Order-of-Battle (OB) reference material, concentrating (and continuing) on Axis OB references. For readers just joining our publication, the past two parts of the series covered Allied OB material and started coverage on German OB references....

The best German-language Order-of-Battle study to date is currently being published in Germany. This work, titled *Verbande und Truppen der deutschen Wehrmacht und Waffen-SS, 1939-1945* (Units and Troops of the German Armored Forces and Armed SS, 1939-45), is by Georg Tessin, and is a multi-volume publication with a totally different approach. It is published by *Verlag E.S.Mittler und Sohn GmbH, Frankfurt/Main*, and is available from the publisher (mainly on a subscription basis). The author is an internationally-recognized authority on the German *Wehrmacht*, and is an employee of the *Bundesarchiv-Militararchivs*. In researching this lengthy publication, the author has worked entirely from primary source material, including the *Feldpostubersicht* (or Field Post Lists), numerous copies of the *Schematische Kriegsgliederung* (Schematic War Organization Lists), and other documents captured by the U.S. Army and returned to the Germans in 1962. The Second Volume of *Verbande....* was published first, appearing in 1965, and so far, eight volumes have appeared out of a 'planned' twelve volumes. It should be stressed that this is not a cheap reference to purchase... each volume costs approximately $12; this high costs is due to the limited production of what is certainly a specialized reference work. Each volume covers a portion of the German Armed Forces, arranged in numerical sequence through the volumes. For example, Volume II. covers *all* units of the German *Wehrmacht* and *Waffen-SS* which were identified by the numbers 1, 2, 3, 4 or 5. Volume III. covers units numbered 6, 7, 8, 9 and 10, and so on.... By *all*, we mean exactly that... including Army, *Luftwaffe* ground units, *Kriegsmarine* ground units, and foreign units which had German field post numbers. Each 'number' is listed in a volume as a separate chapter, and under each number, units are listed and covered in the following sequence:

A. *Kommandobehorden* (Command Units... these include Armies, Corps, Military Districts and Air Force Districts.)

B. *Infanterie* (All unts of the 'Infantry' branch, including Mountain and *Jager* troops, *Luftwaffe* Field units, Border troops, Fortress troops, Eastern troops, etc.)

C. *Schnelle Truppen* ('Fast' Troops - *Panzer*, *Panzerjager*, *Panzergrenadiere*, Reconnaissance units, Cavalry and Schools.)

D. *Artillerie* (Artillery of all types, including *Flak* and Rocket (or *Werfer*) units.)

E. *Pioniere* (Engineer units)

F. *Nachrichten* (Signal units)

G. *Versorgung* (Supply and Administration units of all types)

H. *Sicherung* (Security troops, including POW camps, Military Police and Secret Field Police)

J. *Kriegsmarine* (Navy ground troops only)

K. *Luftwaffe* (Air Force ground units only)

L. *Waffen-SS* (Combat units of the Armed SS)

M. *Verbundete* (Foreign units in the German *Feldpost* Lists)

Under 'Command' units, the volumes are structured to present 1) a listing of all 'Army' or 'Corps' troops and units, 2) a list of all commanders, 3) assignments to next higher command (broken down by months), 4) a listing of all components, listing all smaller units attached, again by month, and 5) an employment list which includes all campaigns and battle 'honors'. Coverage in this section also includes Hungarian and Italian command units which controlled German divisions.

In sections B. through M., the volumes start with division sized units and work their way down, in each category, to the smallest independent unit (usually of battalion size). Division sized units include an organizational history which lists all organizational changes that took place. This is followed by a complete, month-by-month listing of assignments, which includes Corps assignment, Army assignment, Army Group assignment, front location and command post (or country) location. Each of the numbered sub units of the division may also be found under its 'own' number in the applicable volume.

As a point of interest, Volume I. has not been published, and it will not be available until the remainder of the volumes are printed. This first volume will cover all units which do not have numbers and which were 'named' units only.

The amount of detail to be found in this work is amazing. For example, a casual glance will show units which most readers will have no knowledge of. For example, what was the background on the Hungarian *Panzer-Jagd-Verbande* which were organized in April 1945 with hand weapons to counter Russian tanks? Volume II. and III. provides a listing and basic information on these units, including notes on where they were formed, where they fought and what happened to them.

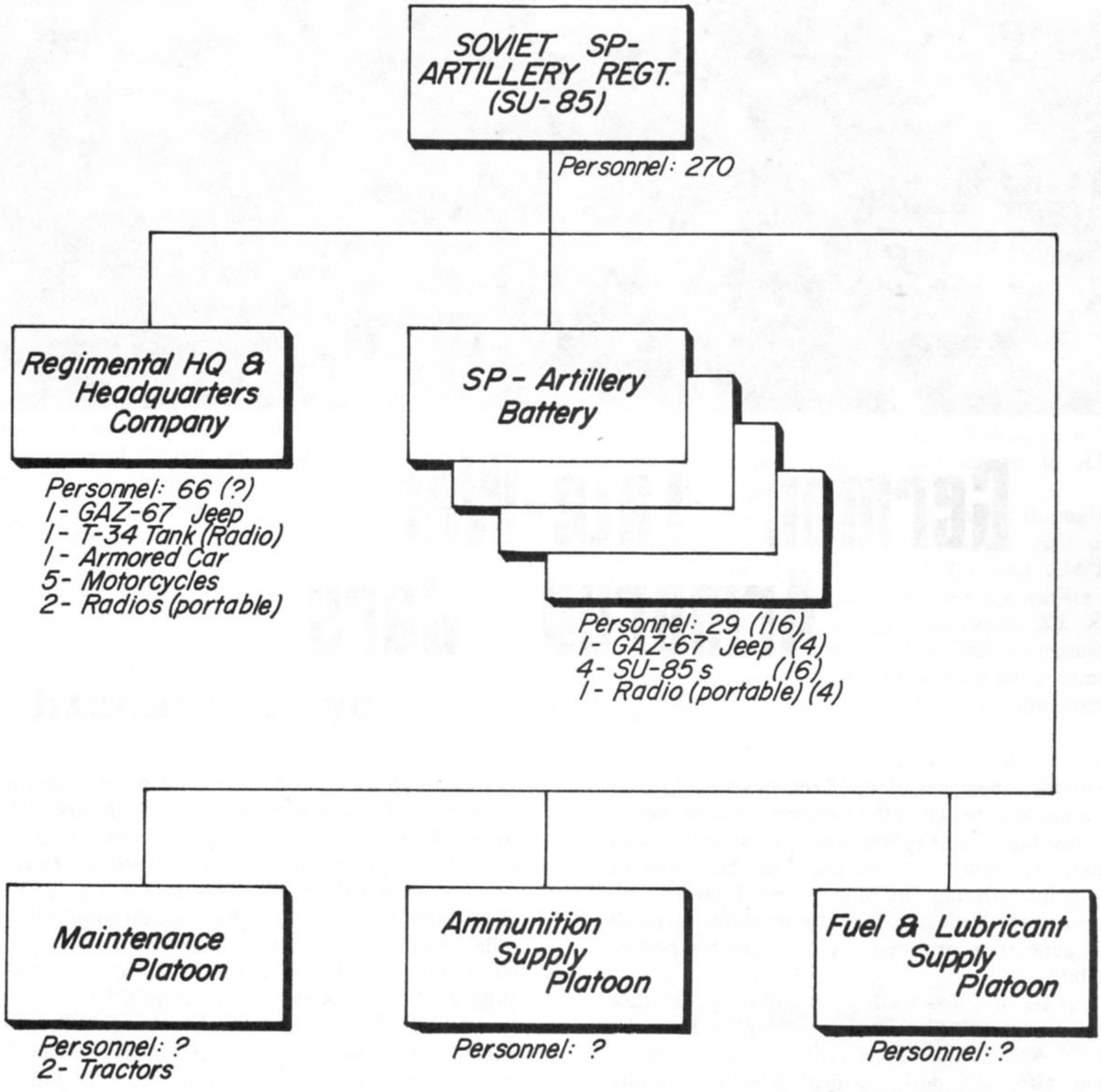
There are two basic problems or disadvantages involved with using this reference work. First of course is the expense, coupled with the fact that to be complete, you must have all twelve volumes. Secondly, there are no listings of units in a particular time frame.... to find details on *all* units that took part in the Ardennes fighting in the winter of 1944-45, one would need some other OB study to list the specific units that were involved. Once a unit *number* is known, then this reference comes into its own in providing details and background. So, it should be made obvious that, while of tremendous value to a serious historian, this publication is no complete solution. Readers should also remember that this tremendous work is *in German*... there's nothing in the publication that is too difficult for the average German-English dictionary, but this could be a problem unless it is understood.

This concludes our possible sources for German OB material. There are undoubtedly a good many which have not been listed, for one reason or another. There is a goodly amount of valuable material on microfilm and available from the National Archives, and as such material is located, we can provide some source notes in forth coming parts of the Historian's Notebook. As a note of invitation, if readers find material which would be of use to military historians, please let us share that material with our readers through this medium.

ORGANIZATION CHART:

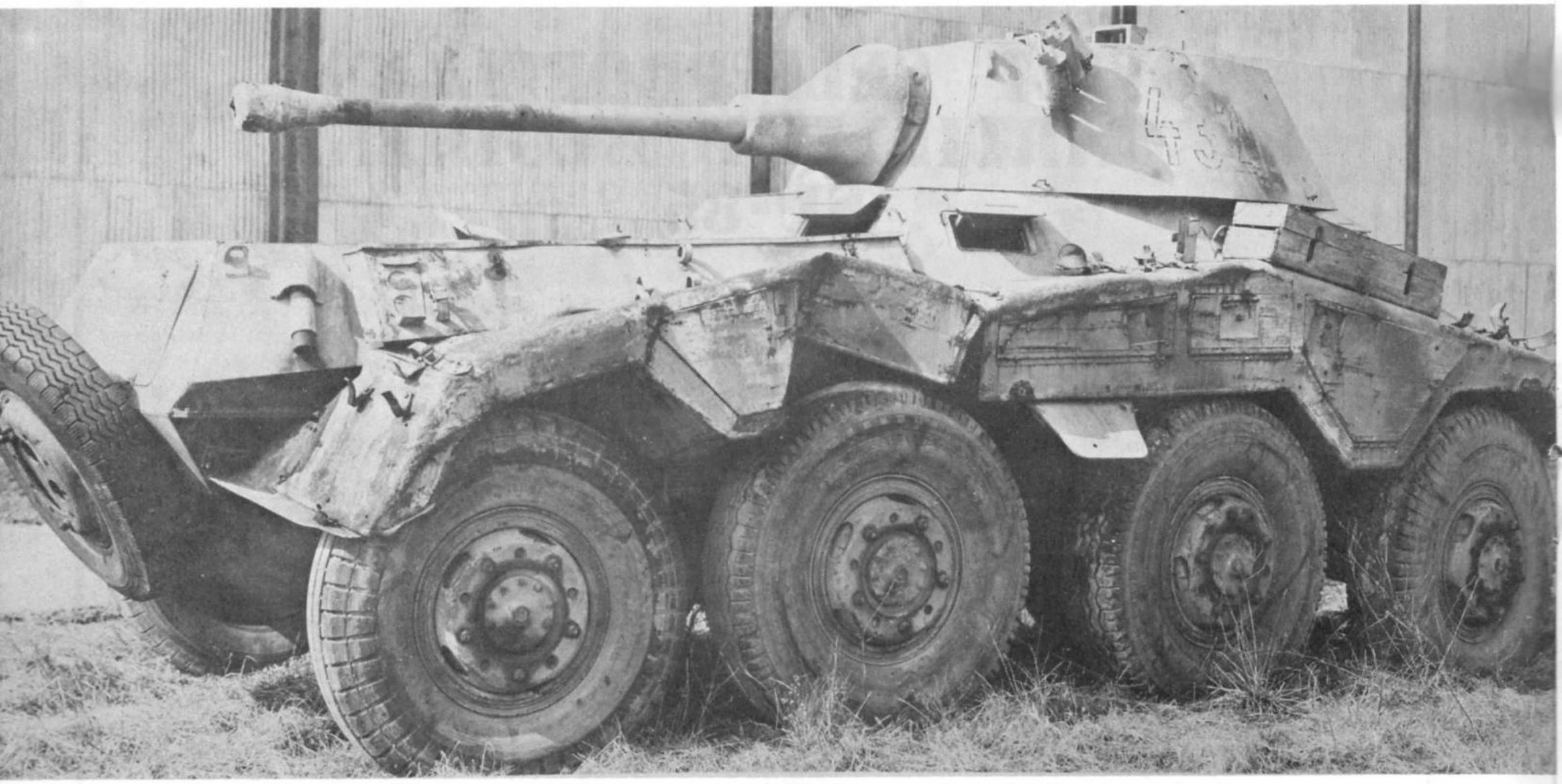
SOVIET SELF-PROPELLED ARTILLERY REGIMENT (SU-85)

DATE: SUMMER 1944
by W. Larson & J. Steuard



Additional Equipment: 38- Trucks (5 seat)
2- Field Kitchen Trailers
102- Machine Pistols

Source: OKW; Abt. Fremde Heere Ost: „Kriegsgliederung eines selbstfahrenden Art. Rgt. (Slb. 85)"
(Natl. Archives, T78, R486, Frame No. 6470545 KStN Nr. 010/2



German Late-War Armored Cars

Part 1

by J. Steuard

Shortly after the conclusion of the French Campaign, in August of 1940, a major redesign of the German 8-wheel, heavy armored car was instituted. This redesign effort was initiated as a result of combat experience with the *Sd. Kfz. 231* series of heavy vehicles, gained during the Polish and French campaigns. In essence, the redesign was to produce a much superior, second-generation armored car with greater performance and reliability.

The *Bussing-NAG* firm was made responsible for the new vehicle's hull and suspension. Since *Bussing-NAG* had been the designer of the *Sd. Kfz. 231* series of vehicles, earlier efforts were now used to effect a redesign which showed continuity and progress, with numerous changes. First and formost, the earlier truck style chassis of parallel rails was dropped in favor of a simplier, monoque body which absorbed the functions of the chassis. The new suspension utilized large-diameter, low-pressure, 270-20 tires which gave substantially better performance over difficult terrain than with the smaller-tired predeccessors. The new hull was longer and wider, giving more interior space. The vertical height (or silhouette) of the vehicle was reduced. Due to the increased vehicle size and increased armor thickness (to provide better protection from enemy small-arms fire), the weight of the new armored car also increased from 8.1 tons to over 10.5 tons. The larger vehicle also suffered from a larger turning radius, but these liabilities were not judged serious.

In an effort to produce a more reliable and more powerful engine for the new armored car, the *Heeres-Waffen-Amt* (or Army Weapons Office) turned to the Czechoslovak *Tatra* company, which had produced excellent heavy trucks and engines in the 1930's. The *Tatra* firm was given the assignment of designing a air-cooled, V-12 diesel engine which would be reliable and robust and produce 220-250 horsepower (roughly 80 to 100 more than that of the earlier vehicles). It has been suggested that this engine was chosen for its 'intended service in hot climates', but in reality, the design order was placed with *Tatra* prior to the birth of the *Afrikakorps*. The resulting *Tatra* powerplant was simple and reliable, especially in the hotter climates. It propelled the heavier vehicle at the same speed (top road speed was 85 kilometers per hour), with greater fuel economy. In addition, the vehicle's larger fuel tanks gave the new armored cars almost double the range, an important factor in terms of re-supply. The new vehicle, under normal operating conditions, could operate without fuel re-supply for twice as long.

Photo Above: Sd. Kfz. 234/2 Heavy Armored Car, shown just after its arrival at Aberdeen Proving Ground. While obviously battered, the vehicle is still in operating condition. Note the stencil-style tactical numbers on the turret. The crudely taped muzzle cover was fashioned by U.S. Army ordnance personnel for the trip overseas. Credit: U.S. Army via the late Col.Jarrett.

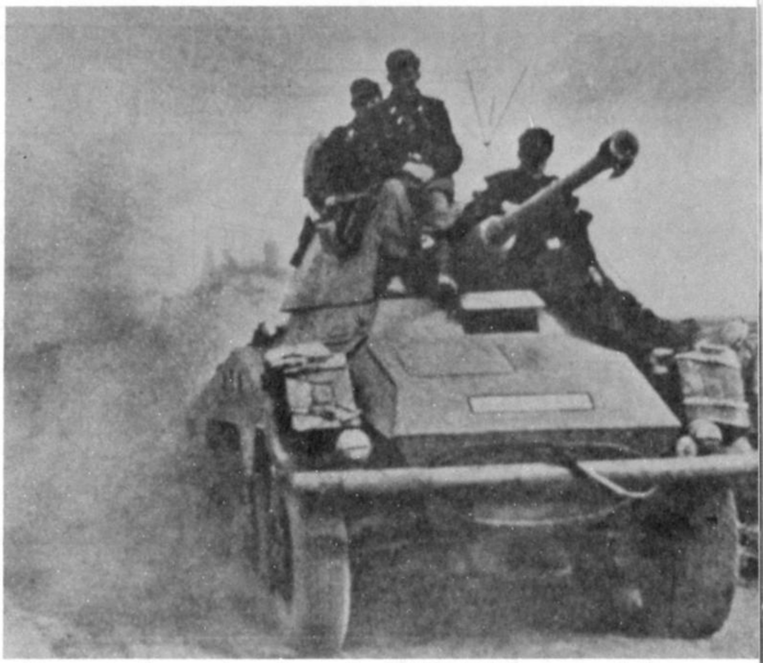
The new *Sd. Kfz. 234* armored car retained the unique driving stations and transmission arrangement of its predecessors. In this design, the transmission offered 6 speeds forward and 6 speeds in reverse. The fore and aft driving stations permitted driving of the vehicle in either a forward or rearward direction with equal ease. Since all eight wheels were used in steering (to reduce steering effort and decrease turning radius), the vehicle steered equally well in both directions. In the forward direction, the vehicle was driven by the Driver, while rearward driving was handled by the Radio Operator who sat facing the rear.

In the new *Sd. Kfz. 234*, the awkward-looking 'bedframe' antenna was replaced by a simple vertical whip antenna, and by the 'turnstile' command antenna in command and communications vehicles. Both antennae were mounted on the left rear fender. The previous frame-type antenna attracted enemy fire since visual recognition of command and communications vehicles was quite easy with the large, bulky frames. In addition, the change in antenna style simplified manufacture.

The *Sd. Kfz. 234* was produced in four versions, two of which will be covered in this article. Chronologically, the first of the redesigned heavy armored cars was the *Sd. Kfz. 234/1*, which was designed to replace the earlier *Sd. Kfz. 231* and *232*. The closed-top turret of the earlier armored cars wa replaced in the *234/1* by an open-topped turret which was similar to that used on the light, 4-wheeled *Sd. Kfz. 222*. This new turret carried a *2cm KwK 38* cannon with a coaxial *7.9mm MG34* machine gun. This cannon was a modification of the *2cm* anti-aircraft gun, using 10-round magazines instead of the 20-round versions of the *Flak* weapon. The open-top of the new turret was covered by a pair of hinged, wire-mesh covers (like those on the *Sd. Kfz. 222*), which served to keep grenades out of the vehicle when it was employed in close combat. The turret armament could be elevated for employment in the anti-aircraft role if required. 28 magazines (with 10 rounds per magazine) were carried for the main armament, and 2400 rounds of belted machine gun ammunition for the secondary armament. This armament was judged adequate (as it had been in earlier versions) for normal reconnaissance missions.

In terms of employment, the *Sd. Kfz. 234/1* became the standard reconnaissance version of the heavy armored car. The organizations which utilized this vehicle will be illustrated in a future organization chart article in *AFV-G2*.

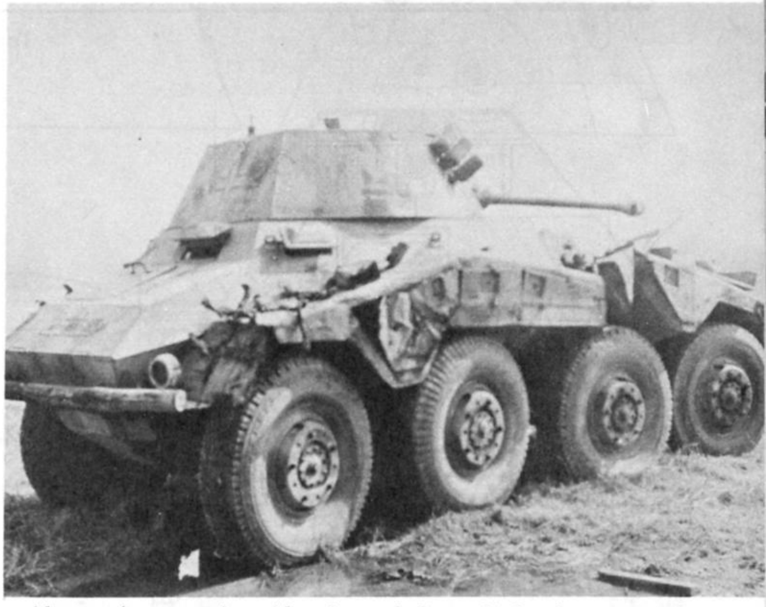
One of the principal reasons for the redesign of the 8-wheel armored cars was to produce a vehicle which could carry a superior form of armament. The *Sd. Kfz. 234/2 'Puma'* was created specifically to satisfy this requirement. A typical *Sd. Kfz. 234/2* is illustrated opposite (Photo courtesy U.S. Army). The vehicle mounted a *5cm KwK 39/1*, a modified 50mm tank gun which had become obsolete for tank use. This gun and a coaxial *7.9mm MG34* were mounted in an armored, cylindrical turret which gave some armor protection to the mounting and crew. This turret and armament was developed by *Schichau* and *Daimler-Benz*; it was a simple replacement for the *2cm* turret for the *Sd. Kfz. 234/1*, and in this system, production hulls could be converted into the *'Puma'* version by the simple change of the turret and armament. This vehicle carried 55 rounds of the *5cm* ammunition and 1980 rounds of belted rifle-caliber rounds for the coaxial machine gun. The vehicle retained the standard 4-man crew, with the commander also serving as the Loader in the two-man turret. Turret armor thickness was 14.5mm at front and sides, and 10mm at the rear; barely adequate to stop heavier machine gun projectiles. It is thus obvious that the *'Puma'* was not designed to counter enemy armor in a lengthy fire-fight; the vehicle's armor was just too thin. Although there is an appearance of a 'wheeled tank', this was not the intended purpose of the vehicle. It was, instead, designed as an armored reconnaissance vehicle with sufficient firepower to counteract anything that a normal reconnaissance mission would encounter. The typical employment of the *5cm* armed *Sd. Kfz. 234/2*, as well as the basic combat unit organization was outlined in *AFV-G2* Vol. 4, Number 11, on page 28 and 29.



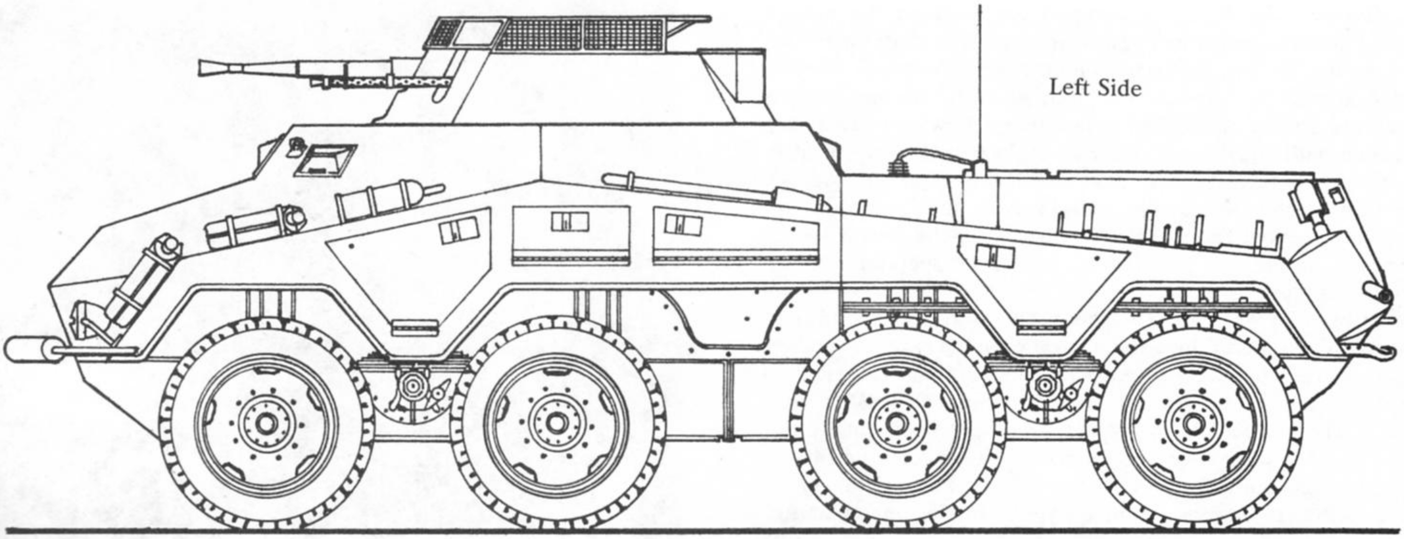
Above: An interesting photo of a Sd.Kfz.234/2 at speed. Note that the crew preferred riding outside when the vehicle was not in combat. This photo was taken on the Eastern Front.

These two important vehicles went through their developmental stages in 1941 and 1942. In July of 1943, series production of the *Sd. Kfz. 234/1* and *234/2* started, and delivered vehicles began to replace the earlier vehicles in the Autumn of 1943. Although the earlier *Sd. Kfz. 231* series vehicles (especially the *Sd. Kfz. 263* communications vehicle) remained in service until 1945, they were commonly replaced for front line service in combat unit by the later, more reliable and modern vehicles.

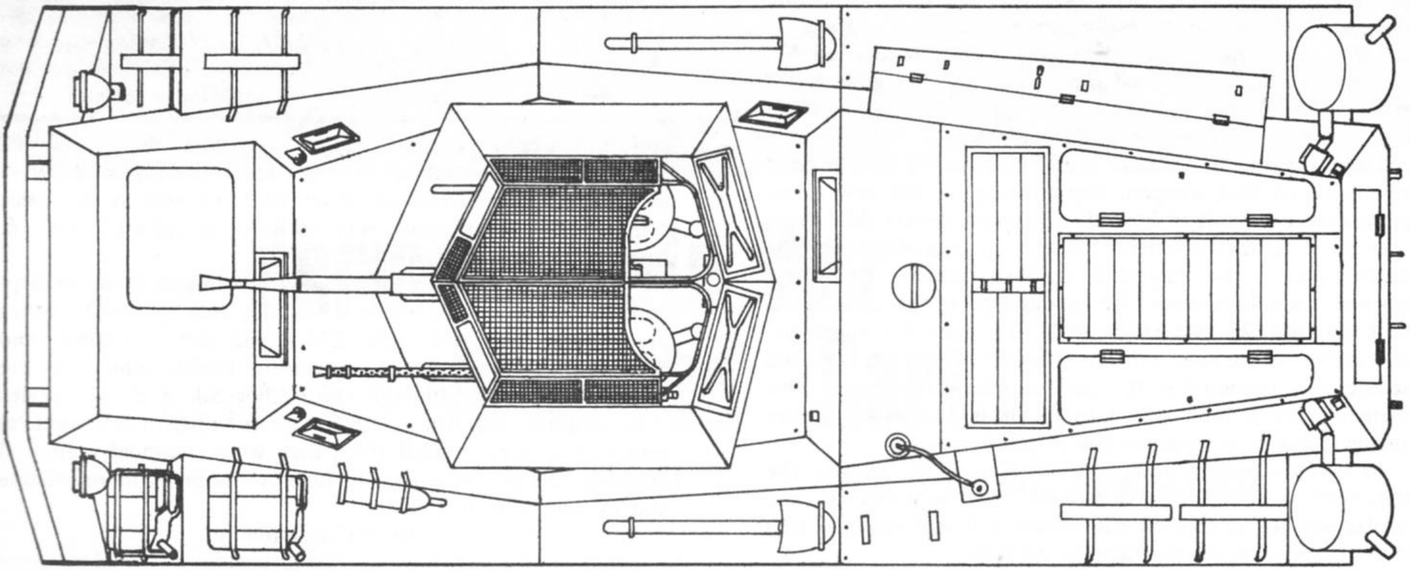
To be Continued



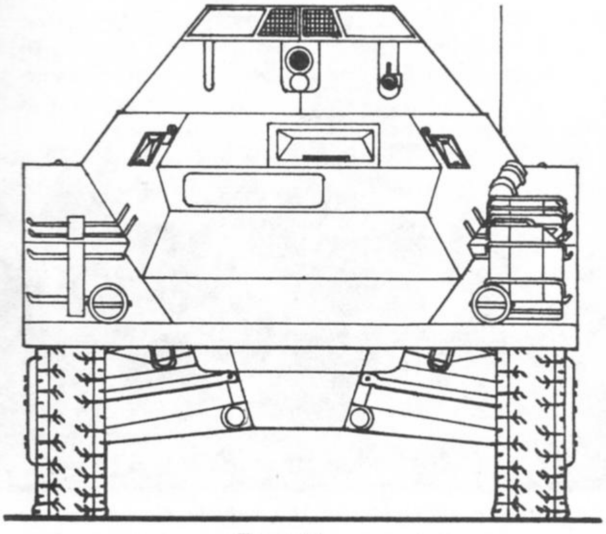
Above: An opposite side view of the vehicle shown on the opposite page, taken after the vehicle had arrived at Aberdeen Proving Ground for testing. The Balkan cross on the turret rear can barely be seen; it was of simple, black outline style.



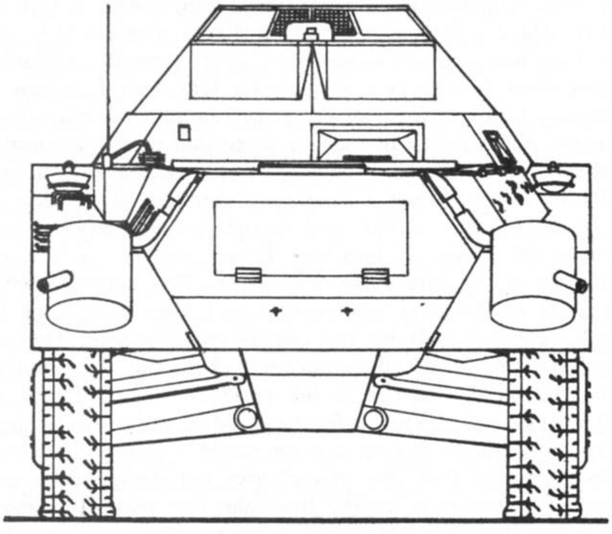
Left Side



Top View



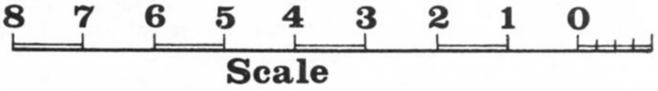
Front View



Rear View

GERMAN HEAVY ARMORED CARS

Sd. Kfz. 234/1



DATA TABLE - *SD. KFZ. 234*

Length Overall	602cm
Width Overall	236cm
Height	210cm (229cm)
Combat Weight in Tons	10.5 (11.0)
Engine Make and Type	Tatra V-12 Diesel
Horsepower	220 at 2250 rpm
Power to Weight Ratio (HP/Tons)	21 (20)
Hull Armor, Front	30mm
Hull Armor, Side	8mm
Hull Armor, Rear	14.5mm
Turret Armor, Front	30mm
Turret Armor, Mantlet Maximum	(100mm)
Turret Armor, Side	14.5mm
Turret Armor, Rear	10mm

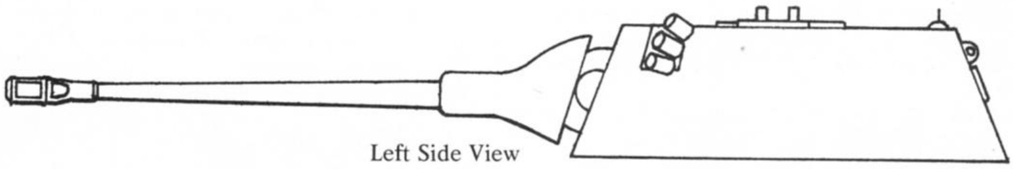
Data in Brackets pertains to the *Sd.Kfz.234/2*

Drawn by S. R. Cobb

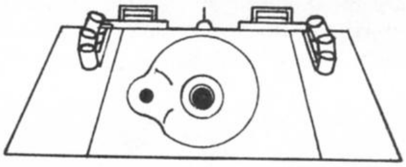
Magazine Purchasers may have photocopies of these drawings made locally as an aid to their personal or commercial modelmaking, but purchasers do not have the right to distribute copies of the drawings to others.

Ratio of this drawing to the original vehicle is 1:32.
To obtain 1:35th Scale drawings, photo-reduce to 92% of the origial size.

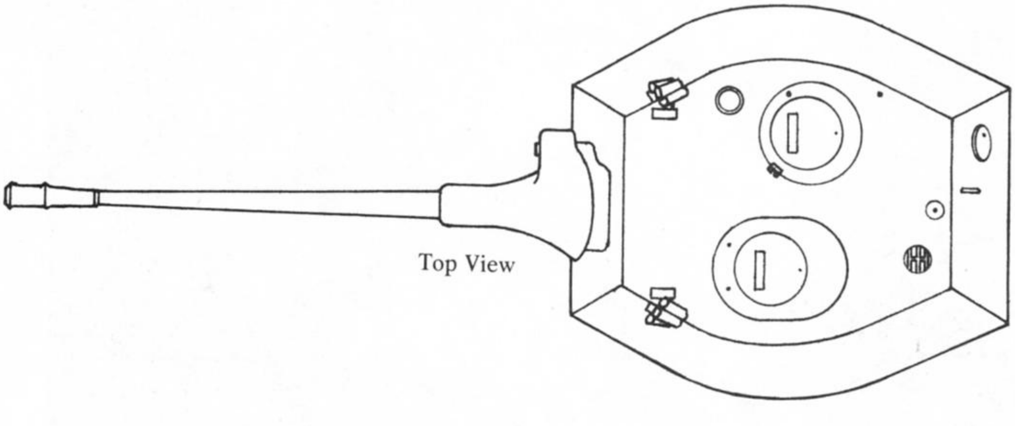
Sd. Kfz. 234/2 'Puma'



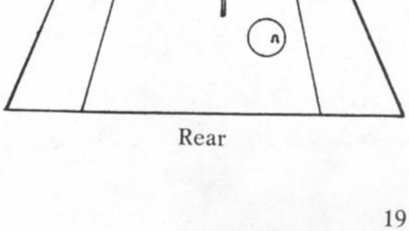
Left Side View



Front



Top View

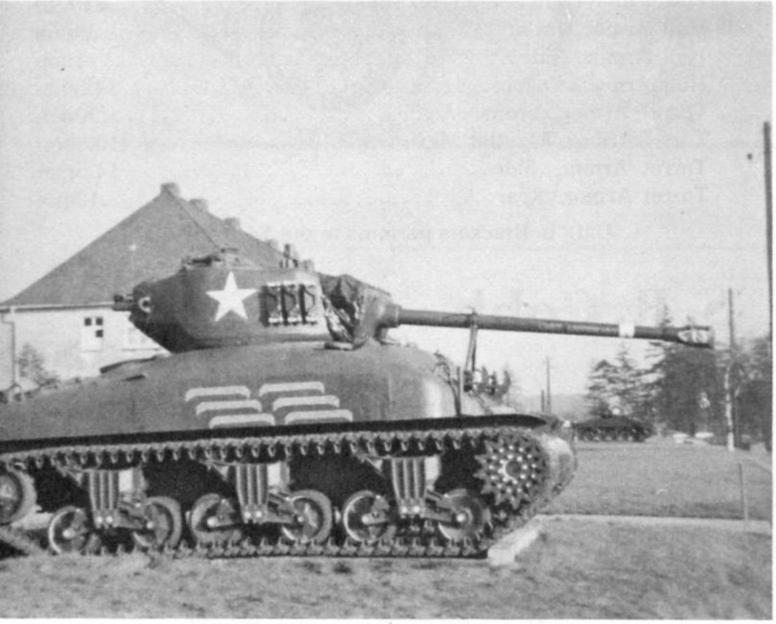


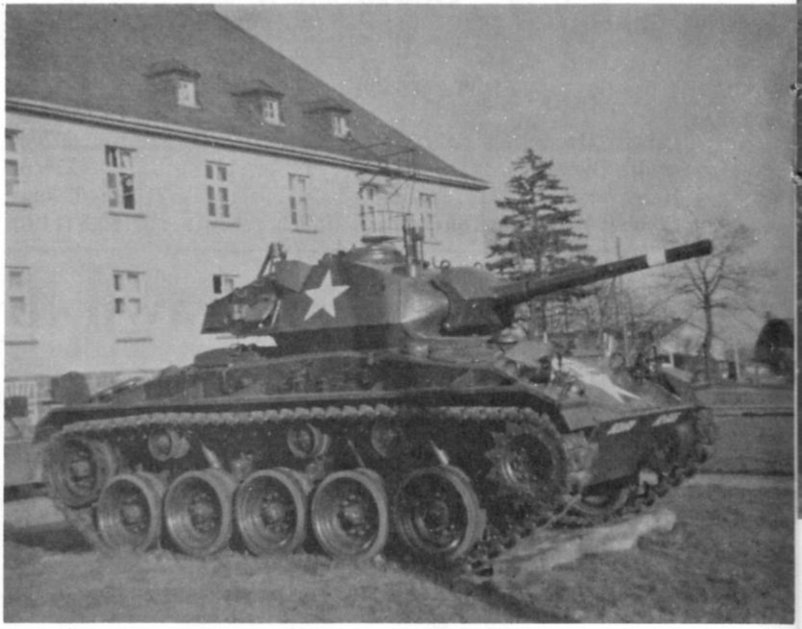
Rear

ARMOR IN PICTURES

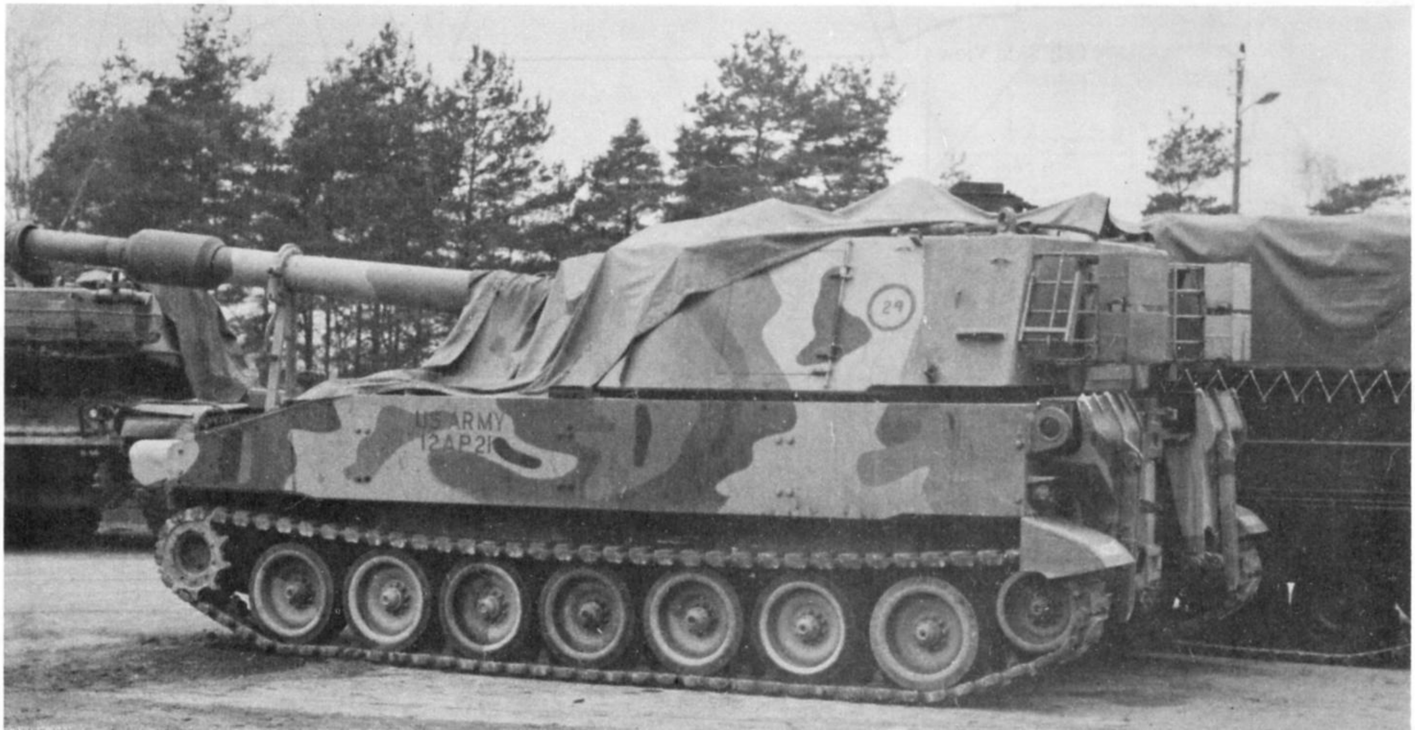
'Armor in Pictures' is a photographic-article series to display reader-submitted material on military vehicles and associated models or dioramas. Readers are invited to submit their photographs of vehicles or models for inclusion in this series. Photos should be packed securely, preferably between sheets of cardboard to prevent folding and/or damage, and sent to *AFV-G2*, P. O. Box 293, La Puente, CA 91747, Attn: 'Armor in Pictures'. Credit will be given in the photo caption for all photos published and all photos will be returned after publication, along with a copy of the magazine in which the pictures appear.

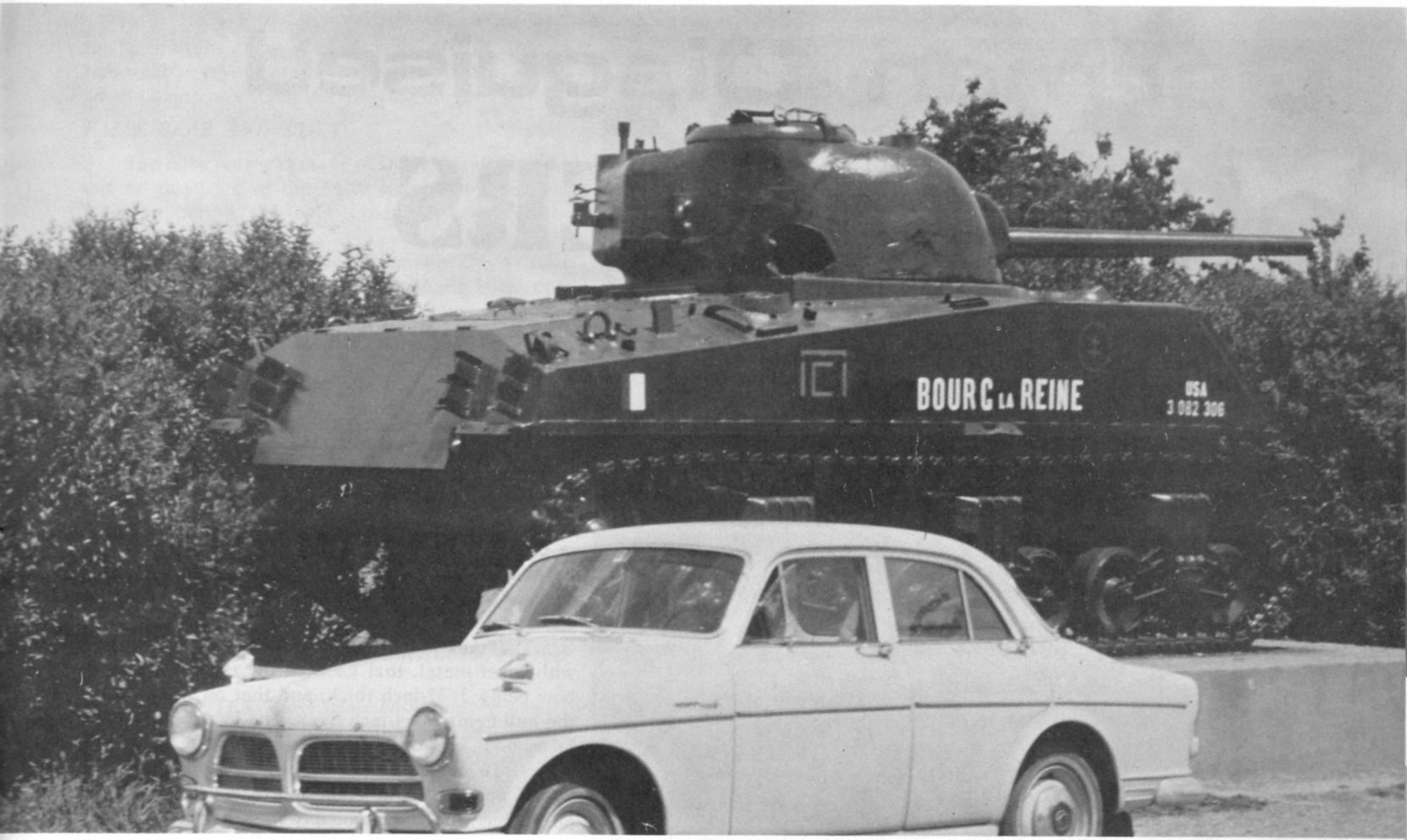
'Armor in Pictures' is also designed to serve readers as a forum for photo requests. If there's a particular photo reference needed, for modeling, for data. for accurate markings, etc., drop *AFV-G2* a note (at the above address) to let the staff know what is required. Our staff will attempt to provide the photos that the readers wish to see, and we'll also provide a list of requested photos that readers are searching for.



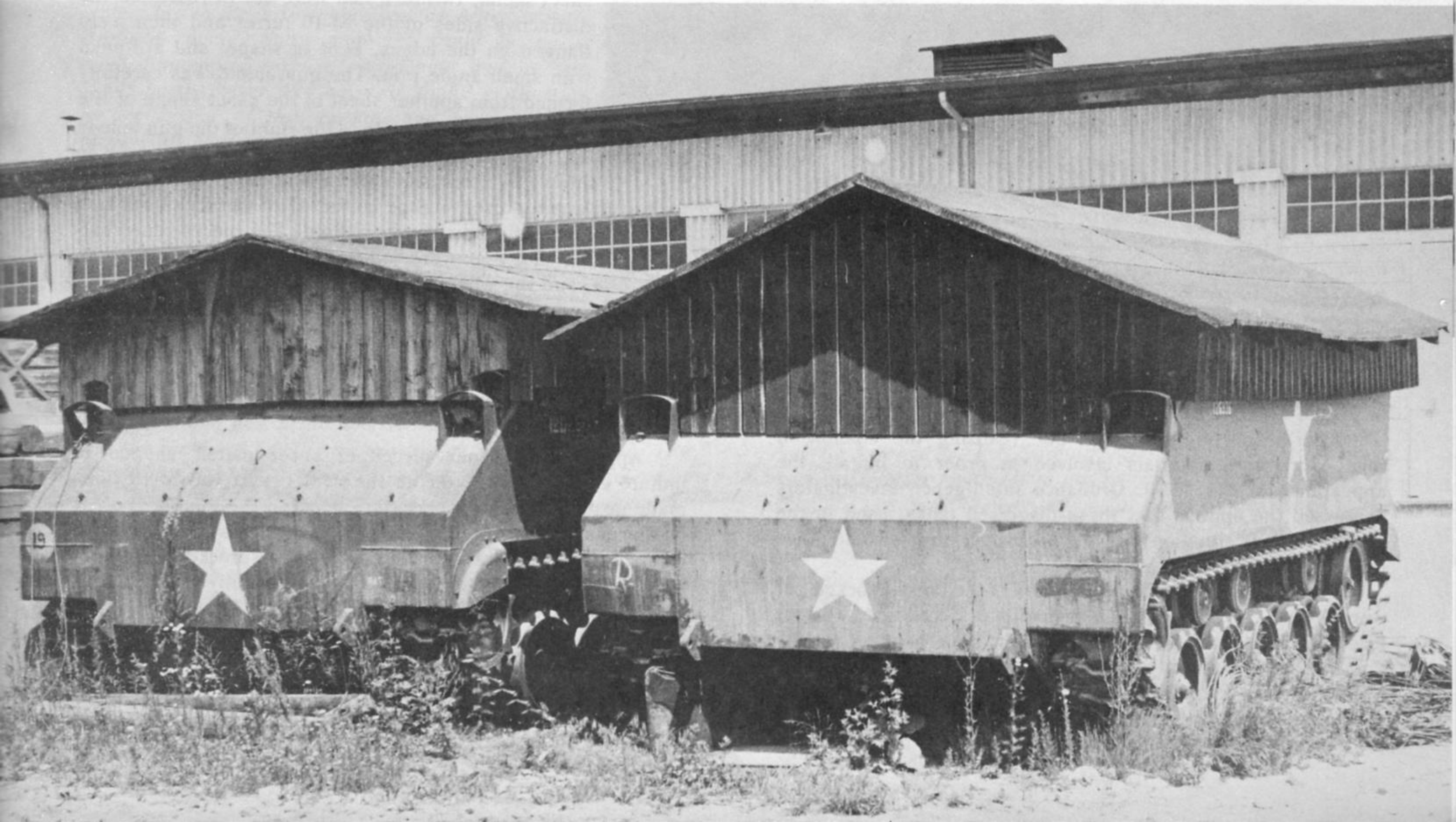


Above, Left: An M-4A1E8 'Mascot' tank at Baumholder, Germany, photographed in January of 1968. Just behind the white band on the gun tube can be seen the lettering 'Lady Lionheart' in red with white shadowing. The six light colored bars on the hull sides are yellow streamers which list the campaigns that the tank battalion participated in during World War II. and Korea. *Above, Right:* An M-24 'Chaffee' light tank, also photographed in January of 1968 at Baumholder, Germany. These two vehicles at the property of the 2nd Battalion of the 68th Armor. *Photos by Richard Brodeur. Below:* An M-109A1 self-propelled gun equipped with the long-tube 155mm howitzer. This vehicle was photographed in February of 1974 by 1LT Russ Vaughan and clearly shows an adaption of the new 7th Army 4-color camouflage scheme.



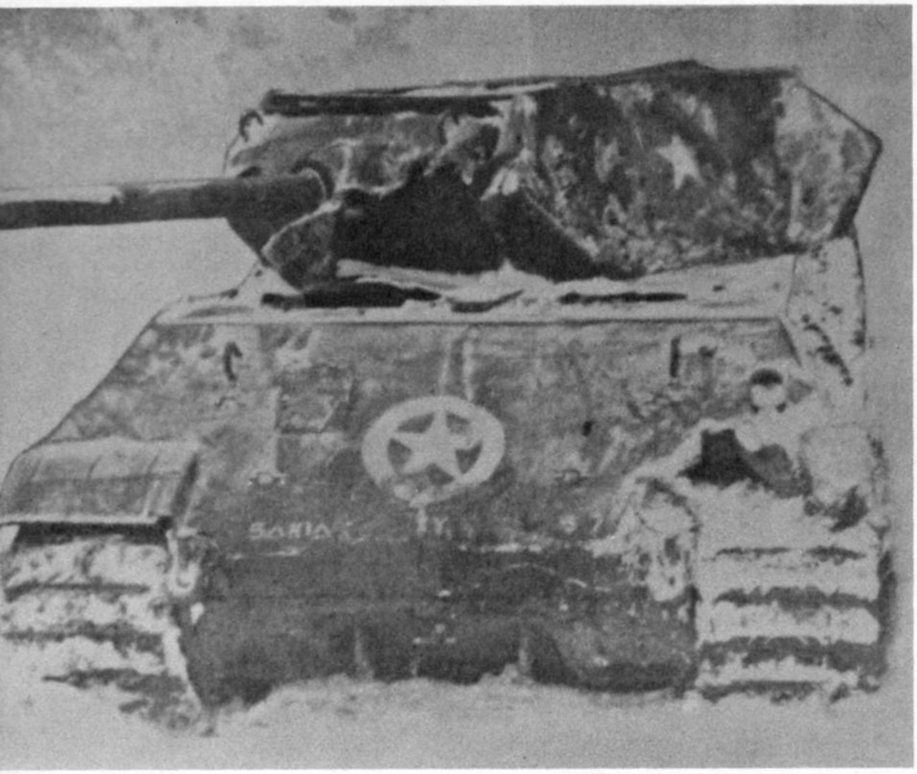


Above: A French battle memorial which consists of a knocked-out M-4A3 Sherman. This photo was taken near Chateaudun or Chateauroux Air Force Base in June, 1964 by Ricardo Murrieta. Note the repainted French unit markings and the tank name *Bourg la Rhine*, which was a small village Southeast of Paris. *Below:* A photo of two unknown vehicles submitted by CPT Dwight C. McLemore which shows two armored personnel carriers with strange house-like superstructures. What purpose did these vehicles serve? Can any reader shed some light on this strange conversion?



German Disguised PANTHERS

(M-10 Look-a-likes)



Above: Front view showing plate over machine gun opening, false lifting rings and brackets and markings. Credit: U.S. Army

The following article is reprinted from the U.S. Army's 'Tactical and Technical Trends', Number 57 of April 1945. Readers will recognize that these disguised Panthers were used by Otto Skorzeny's 150.Panzer-Brigade, which attacked to seize Malmedy. These disguised vehicles have long been a mystery to armor enthusiasts, and it is hoped that this article will help in a small way to clear up some of the doubts.

Investigation of four German *Panther* tanks knocked out in the Malmedy area in the December 1944 breakthrough in Belgium revealed that the tanks were carefully and cleverly disguised as U.S. M-10 Gun Motor Carriages.

After inspecting the tanks and realizing the amount of time, work and materials involved in order to imitate the appearance of the M-10, Ordnance intelligence investigators expressed the opinion that these disguised tanks, used in the proper tactical situation and at the proper time, would have caused considerable damage.

Because the false vehicle numbers of the tanks knocked out were B-4, B-5, B-7 and B-10, investigators concluded that at least 10 similarly disguised tanks might have been in action.

Inside the one tank which was not blown up too badly to be inspected were found items of U.S. clothing such as a helmet, overcoat and leggings. To heighten the deception, U.S. stars were painted on both sides and also on the top of the turret, the entire tank was painted Olive Drab, and U.S. unit markings were painted on the false bow and rear.

In disguising the *Panther*, the distinctive cupola was removed from the turret and two semi-circular hatch covers were hinged in its place to the turret top in order to cover the opening. In addition, it was necessary to remove extra water cans, gas cans, the rammer staff container, and other external vehicular accessories.

The tank was then camouflaged or disguised with sheet metal, that used on the turret and upper bow being 3/32-inch thick, and that on the sides of the hull being 9/64-inch thick. The lower part of the false bow was thicker, possibly made of double plates. To accomplish the deceptive modifications, which pointed to at least fourth or fifth echelon alterations, the work probably was done by maintenance units rather than at a factory. The work probably was divided into four sections: turret, bow, rear and sides.

TURRET CHANGES

The turret was disguised by using five pieces of sheet metal, two of which were cut to resemble the distinctive sides of the M-10 turret and then were flanged on the edges, bent to shape, and stiffened with small angle iron. The gun shield was carefully formed from another sheet to the exact shape of the M-10 shield, and a hole was made to the right of the gun hole in the shield for the coaxial *MG34*, a hole which does not exist in the M-10 shield. Two pieces of sheet metal made up the rear of the turret, one representing the bottom slant surface of the rear and one representing the counterweight. The pieces representing the sides and rear were joined together and braced with angle iron, and the whole was attached to the turret. The false gun shield was attached to the *Panther* gun shield, and all the lifting rings, brackets, extra-armor studs, etc., found on the M-10 turret were carefully duplicated and welded to the false turret.

FALSE BOW

Approximately four pieces of sheet metal, shaped to imitate as closely as possible the contours of the M-10 bow, made up the false bow, necessary because the *Panther* bow is bulkier that the M-10. The false bottom was shaped to give the characteristic appearance of the front drive sprocket housing of the M-10, and the top was shaped carefully and various component pieces attached to the front of the tank. All the brackets, lifting rings, towing clevises, etc., of the M-10 bow were also imitated. A square opening was cut in the false bow to permit the use of the bow *MG34*, but a removeable cover, attached to the vehicle with a small chain, was made for this opening.

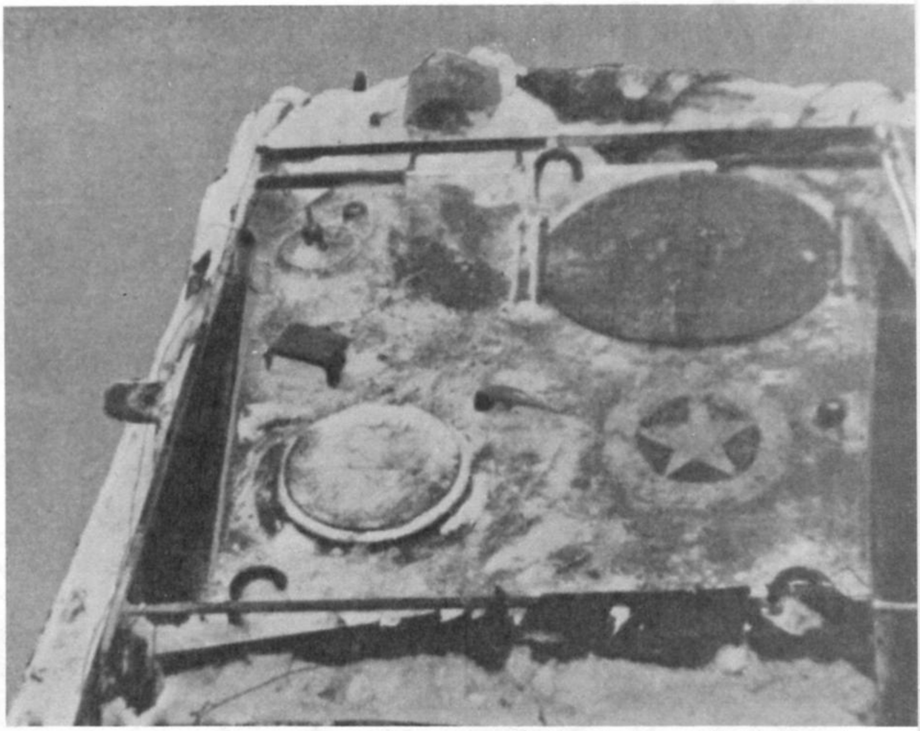
FALSE REAR AND SIDES

The false rear was made of sheet metal. It was a faithful duplicate of the M-10 rear, except for two holes to permit the twin exhaust elbows of the *Panther* to protrude.

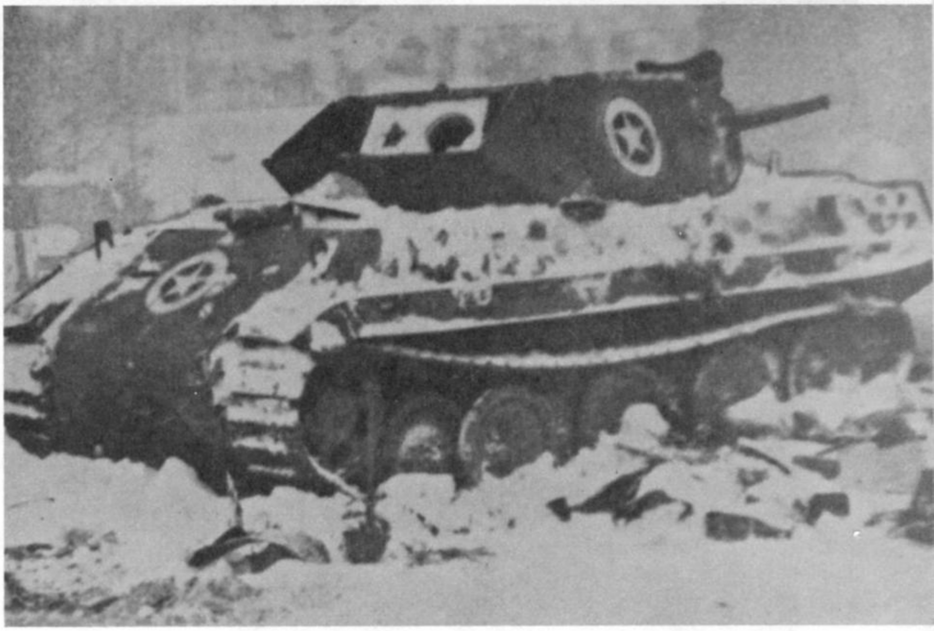
An attempt was made to imitate the skirting armor of the M-10, which appears to hang lower than the side armor of the *Panther* and is bevelled in at the bottom. A long flat strip of sheet metal was attached to the sides parallel to the ground, and a vertical sheet strip was attached at right angles to this strip to give the appearance of low skirting armor.

Features which aid in recognizing disguised *Panthers* and which cannot be camouflaged easily are as follows:

1. The distinctive *Panther* bogie (road wheel) suspension. (The M-18 Gun Motor Carriage had a somewhat similar suspension.)
2. The muzzle brake on the German *7.5cm Kw.K 42* tank cannon.
3. The wide and distinctive track of the *Panther* tank.



Above: Top view of Panther tank disguised as U.S. M-10 tank destroyer, showing hatch covers used in place of the cupola. Credit: U.S. Army



Above: Left front view with turret reversed. Note false final drive housing at bottom of bow and false apron side armor.

EDITOR'S NOTES: Close examination of the front view photograph reveals that the unit markings used in disguising the Panther were for 'B' Company of the 10th Tank Battalion [of the 5th Armored Division]. In between the left and right portions of the unit markings appears a two-letter code 'XY'. Similar markings appeared in photographs of two 150.Panzer-Brigade 'Jeeps'. One source suggests that this two-letter code served as a German recognition device... in other words, any vehicle that carried a central pair of letters such as 'XX' or 'XY' in between the parts of the unit markings was used by the Germans attempting to disguise themselves as Allied troops. And, of course, these markings could be easily applied to newly captured equipment and no one would be the wiser. We have not found verification of the useage of this system, and we would be pleased to hear from readers who have conducted research on this subject.

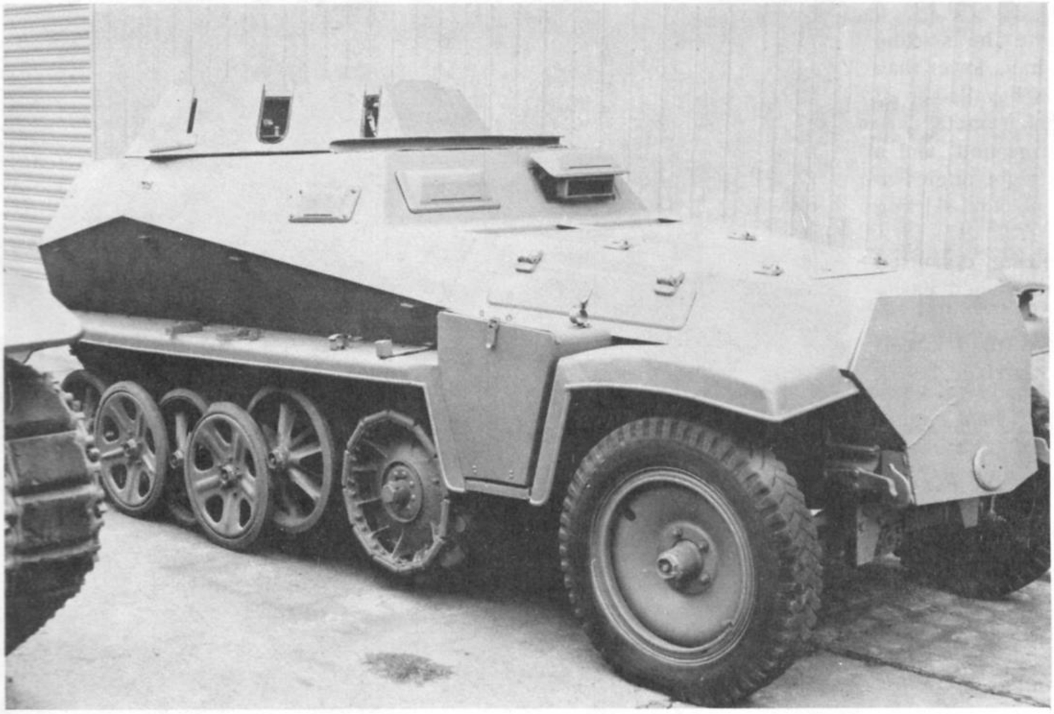
Very little has been written on the combat employment of these disguised Panthers in the Ardennes fighting. Other than a few comments in Otto Skorzeny's book 'Secret Missions' and Charles Foley's 'Commando Extraordinary', the only account that I've found is in 'Those Damned Engineers, by Janice Holt Giles, an excellent account of the 291st Engineer Battalion's defensive stand during the Ardennes fighting. Ms. Gile's book was carefully researched from official documents and post-action interviews of German commanders, and the resulting book is interesting as well as accurate. The attack in which the disguised Panthers were lost took place at 0330 hours on 21 December 1944. The attack combined the armored vehicles and dismounted infantry of the 150.Panzer-Brigade, which advanced across the fields toward Malmedy. Their positions and intentions given away by trip flares, which were accidently ignited by the Panthers, the attacking Germans were taken under fire by tank destroyers and riflemen in the town's structures. The fighting raged on until mid-morning. Some of the attacking tanks were hit by 76mm tank destroyer fire, but the majority of the German casualties were caused by American artillery fire. This fire eventually forced the Germans to retreat, leaving four badly-battered Panther-M-10's on the battlefield. Shortly after the German withdrawal, Malmedy was heavily bombed by U.S. aircraft, who assumed that the town was in German hands. It is not known if the artillery fire or bombings caused the heavy vehicular damage mentioned in the article. One source indicates that one of the disguised Panthers was left in the Ardennes after the war's end, and that it remains there today, although this has not been confirmed.

The photographs used as illustrations in this article were enlarged from the photos appearing in the original article, and, while they're not the best in quality, they should help in showing what the German conversions looked like. These disguised Panthers could be modeled rather easily, following the description in the text, and we would be most interested in seeing the results of such an experiment.

Vehicle Close-up:

The German Sd.Kfz. 250/9 Reconnaissance Halftrack

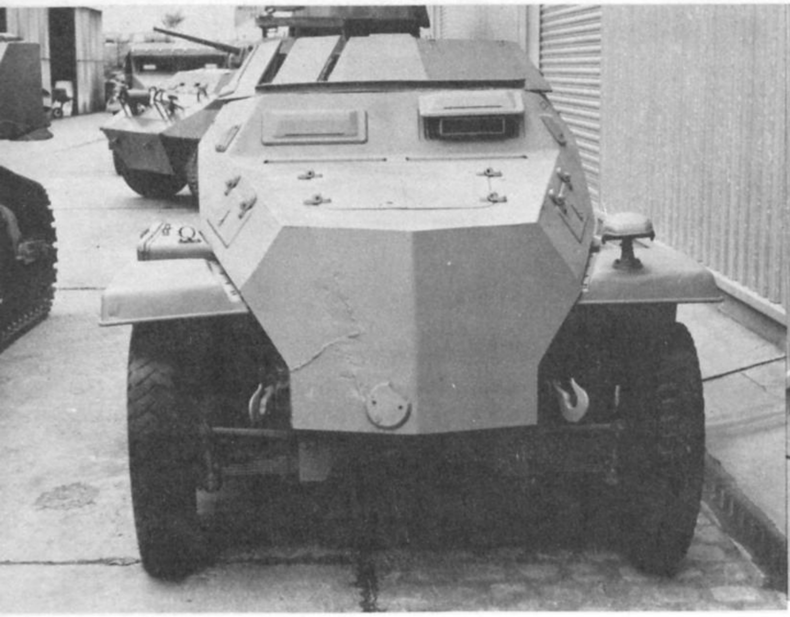
by Sgt. Gary Simpson



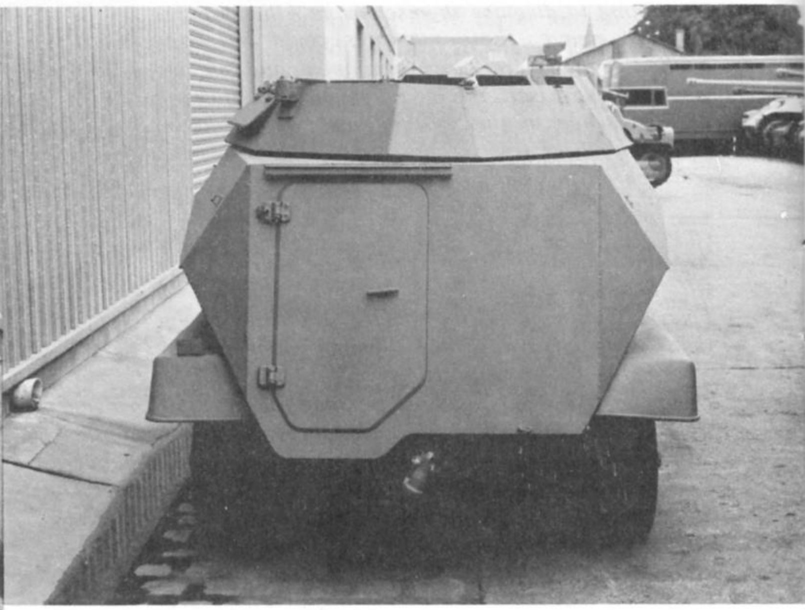
Above: *Angled side-view of the Saumur Sd.Kfz.250/9. The raised driver's visor shows the glass vision block mounting. Note the sighting slit and its armored flap at the leftb side of the turret front. Although some fittings are missing, this is still a prime example of one of the rarest German halftracks.*

Examples of the German *Sd. Kfz.250/9 Panzerspahwagen* light armored reconnaissance halftrack are quite rare today. One of the sole remaining examples of this vehicle is to be found at the French Army Museum at Saumur, France. This vehicle, shown here, is an early version of the *Sd.Kfz. 250*, modified with the installation of the multi-faceted armored car turret which mounted a *2cm KwK 38* and a coaxial *MG34*.

The Saumur vehicle gives a false impression as viewed here, for, although the exterior looks to be in fine condition, the interior is nearly gutted and in very poor shape. This is undoubtedly a result of long neglect in an exposed, outside location. In looking at the exterior, though, you may get the idea that the French are in the process of restoration. The tracks have been removed and the base metal and paint condition shows that work is in progress. Hopefully, the *Sd.Kfz.250/9* will be completed soon and placed in some form of protected storage where the elements cannot claim what well may be the last example of this vehicle.



Above: Front-view of the Sd.Kfz.250/9 reconnaissance halftrack which the French are apparently in the process of restoring. Note the almost-mint external condition of the vehicle. The turret is shown traversed to the 2:00 o'clock position and is obviously minus the armament.



Above: Rear-view of the German light halftrack. As can be seen, the vehicle is still lacking some of the accessories and details, such as the combination tail and blackout light and the storage racks that are commonly fastened to the right of the door. Note the rear vision flap on the turret and the antenna mount just to the right of the flap.

THE BARON'S BOOKSHELF

with books for your bookshelf

Book Review: *After the Battle* (Battle of Britain Prints International Ltd., Stratford, England, $2.50 per issue)

Reviewed by Duane Thomas

Although it is not our general practice in this column to review magazines, this publication does not follow the typical magazine format, and its content is so different that in reality, I tend to view it as a booklet dealing with specific battles. *'After the Battle'* is a quarterly publication devoted to a before-and-after accounting of famous battles and military incidents. The publication is excellently printed on expensive glossy paper with loads of good black-and-white photographs. The covers and centerspreads are printed in full color. The obvious 'gimic' of the publication is a conscious effort to pair wartime photographs with photos of the same scene today. These before and after photos are very interesting as there is a very real effort made to accurately match the original wartime camera angles. Each issue of *After the Battle* contains a major (or feature) article on a specific battle or event. The publication also contains several secondary articles on diverse topics, including brief biographies of famous persons or actors who served in the military establishment. It might prove of interest to look over the contents of the last two issues.

The current issue is numbered '5', and it includes a feature article on the Dieppe landings of 1943. In this article, there has been a merging of several accounts from participants as well as a general description of the Dieppe operation. Photos show the terrain from various angles and, after reading the article, I had gained a much deeper appreciation of the landings. Other contents include a shorter account of Fort Eben-Emael and its various conquests, starting with the German airborne operation in 1940. In addition, there is a fascinating article on a 30-year anniversary Normandy tour, which was conducted in privately-owned, restored military vehicles.

The preceding issue, numbered '4', contained a feature article on the 'Battle of the Bulge' which took place in the winter of 1944-45. This article has a goodly number of photographs, some of which I have not seen previously. The article again approaches the battle from several smaller accopunts, which include coverage on Bastogne, *Kampfgruppe Pieper*, and the Malmedy Massacre. Other articles in the publication include material on Britain's Off-Shore Forts, the Battle of Britain Memorial Aircraft Flight, and an account of the making of the 'Longest Day' motion picture.

Since each issue contains only three or four articles, readers may want to look over an issue's contents before making a purchase. For dedicated military historians though, each issue contains a wealth of material which will be referred to time and again. It is well worth having.

After the Battle is printed in England and is distributed in the United States by Profile Publications Ltd., P.O. Box 2368, Culver City, CA 90230. If you're unable to locate copies at a local dealer, either ask them to contact Profile Publications or write them directly for issues.

Book Review: *Panzer Divisions of World War 2*, by Brigadier H. B. C. Watkins and Duncan Crow (Profile Publications Ltd., P.O. Box 2368, Culver City, CA 90230, 66 pages, $3.95)

Reviewed by James Steuard

This newest soft-cover book from Profile Publications covers the German *Panzer-Divisionen* of World War II. It is divided into two sections; the first, authored by Brigadier Watkins, details the history and development of the *Panzertruppe* and their subsequent employment during the major campaigns of the war. There are a number of excellent photographs of commanders and equipment. The maps, although general, clearly show the armor participation in major battles. Obviously, lack of space was the biggest problem in presenting the material in this section. Brigadier Watkin's narative, though excellent, is much too brief... I would have liked to see the more complete detail, which the author is obviously capable of providing.

The second section of Profile's new book provides a brief order-of-battle and history for all of the German *Panzer-Divisionen*, written by Duncan Crow. Roughly ¼ of a page has been allocated for each German division; obviously space limitations were imposed in this section also. This section covers *Wehrmacht*, *Waffen-SS* and other divisional armor units. There are some really excellent photographs in this section, most of them previously unpublished. Although too brief, this is probably the cheapest German armor order-of-battle that one can buy, and it can be recommended on this basis if for no other. I would have liked much more material on each of the divisions; a one paragraph capsule history is condensing a little too far, and I feel that a reasonable compromise would have been at least one page on each formation. It is all but impossible not to have missed significant events in a unit history when one is forced into too much condensation.

In spite of the above shortcomings, this soft-cover book offers excellent value for the money, and it can be well recommended. Since it's new, it may take a little time to reach local dealers, so be patient.

Book Review: *Tiger I. in Action*, by Uwe Feist and Norm E. Harms (Squadron/Signal Publications, 3515 E. Ten Mile Road, Warren, MI 48091, $3.95)

Reviewed by James Steuard

Numbered as '8' in Squadron/Signal's Armor Series, this has to be the best book produced in the series! Most German tank enthusiasts will welcome a photographic book on the *Tiger* heavy tank and this new publication is especially interesting as most of the photos are new and fresh.

Tiger I. in Action contains 81 photographs distributed over 50 pages. The full color covers and centerspread feature two perspective views and two side views of typical *Tiger* tanks, as well as 5 renderings of *Tiger* crewmen done by Ron Volstad

Continued on Page 33

COLOR 'N CAMOUFLAGE

German Panzerkampfwagen VI. Tiger II. Heavy Tanks

by James Steuard

One of the most feared German tanks of the late-war (1944-1945) period was the heavy *Panzerkampfwagen VI., Ausf.B* or *'Tiger II.'* tank. With a long barreled *8.8cm* gun and thick frontal armor, the *Tiger II.* was nearly invincible in a defensive battle, even though engine and drive train reliability was not among the best and the tank was overly heavy for most roads.

During the late summer of 1944, a great deal of difficulty errupted between Germany and its ally, Hungary. The Hungarian Regent, Admiral Horthy, was apparently attempting to contact the advancing Russians in order to achieve a separate peace. Of course, such a peace settlement would seriously jeopardize Germany's southeastern flank and, in all liklyhood, the German divisions fighting on the Carpathian front would be lost since they would be unable to stand against the 120 Soviet divisions there. To stop this potentially dangerous situation from becoming worse, the German commando leader, *SS-Sturmbannführer* (or Major) Otto Skorzeny was assigned the mission of foiling the Hungarian plans. This was accomplished in two stages. First, the younger son of Admiral Horthy was kidnapped in order to apply pressure to Horthy to remain in the German alliance. When this failed to stop the crisis, a 'commando' operation was organized to seize the *Burgberg*, the fortress on Castle Hill overlooking Budapest, from which the Hungarian military exercised command. This operation, titled *'Panzerfaust'*, was under the personal command of Skorzeny, whose troops consisted of elements from several commands. First, the Castle Hill was slowly encircled (so as not to arrouse suspicion) by troops of the *22. SS-Kavallerie-Division*, a German-Hungarian volunteer division of the *Waffen-SS* in training around Budapest. Skorzeny's assault troops consisted of one company of his paratroops (from *SS-Sonderverband 'Friedenthal'*), a company of officer cadets, and a company of heavy *Tiger II.* tanks. This heavy tank company was the *2.Kompanie* of a newly-equipped Army *schwere-Panzer-Abteilung* which was apparently working up or training in Hungary. We have not been able to ascertain the designation of this battalion but it is evident from photographs that the company's equipment was virtually new and that crews were from the Army, not the *Waffen-SS*, from their uniforms. The vehicle shown opposite was the company commander's tank which was shown twice in photographs; once as it crashed over a broken down gate to enter the castle's courtyard, and once after the conclusion of the operation when it was seen parked in the courtyard. The same batch of photographs show that vehicles of the company were similarly painted and marked, with all markings confined to surfaces of the turet. As regards the vehices themselves, they are apparently from the initial production series of *Tiger II.*'s. All vehicles have *Zimmerit* anti-magnetic mine paste applied to the vertical surfaces. No *Zimmerit* was applied to the fender skirting, the hull top or the turret roof. The vehicles were camouflaged with dark green and small amounts of dark brown paint, sprayed over the factory-applied sand-tan primer paint. All edges between colors are soft and the colors blend together smoothly. Judging by the photographs, over 50% of the tanks' surfaces were camouflaged with darker colors. It is not evident how much dark brown paint was used; an estimate would be no more than 5% to 10%.

GERMAN DARK GREEN
Floquil M46 Green
🟩

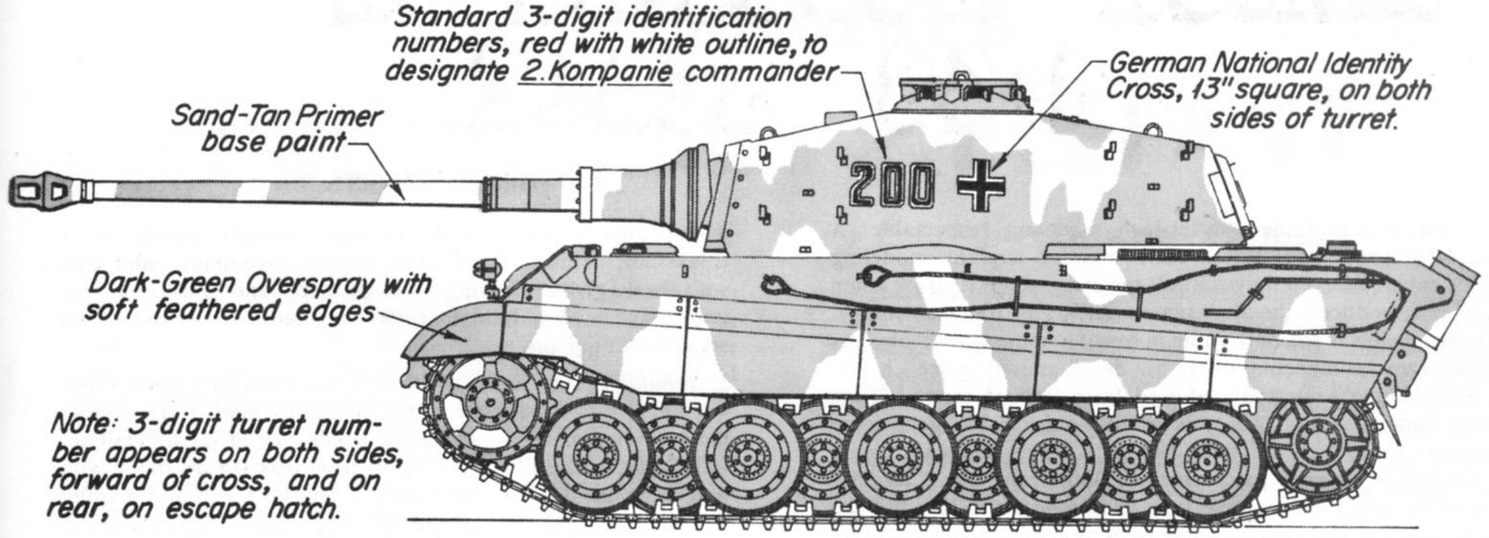
The *Tiger II.*'s of this Army Tank Battalion were marked in accordance with the normal Army practices. The standard German National Identity Cross (*Balkankreuz*) was painted on the turret sides; this marking was approximately 13-inches square with fairly narrow white edging. Forward of the national marking on both sides appeared a 3-digit identification code number which designated the position of the tank within the battalion. The company commander's tank shown opposite carried the number '200' but photographs show that '223', '231' and '233' were also used in Operation *Panzerfaust*. These numbers were of the normal red with white edging style, approximately 10-inches high, and were painted over the *Zimmerit*. They also appeared on the turret rear, superimposed over the turret escape hatches.

The second vehicle in this issue's article was from the *3.Kompanie* of *schwere-SS-Panzer-Abteilung 501.*, the corps-level tank battalion of the *I.SS-Panzer-Korps*. This vehicle was recovered by U.S. Army ordnance personnel from First Army, who found it abandonned by its former owners, out of fuel. This was one of the vehicles that spearheaded the drive of *Kampfgruppe Pieper* to cross the Meuse River during the German attack into the Ardennes in the winter of 1944-45. When the German *Kampfgruppe* outraced its resupplies and encountered a combination of poor roads, downed (or damaged) bridges and enemy resistance, the advance slowed and stopped. And, where the limits of the advance were reached, battered or out-of-fuel vehicles were found abandonned like debris at the ocean's high tide line. Our particular vehicle was photographed as it was found, sitting snow-covered in a ditch. It was one of several such *Tiger II.*'s which were recovered and moved to the rear for evaluation and testing.

Although most of the *Tiger II.* was covered by snow, enough of the color and camouflage was displayed so as to be analyzed. The vehicle was camouflaged in dark green bands, hand painted over the factory-applied sand-tan primer. The edges of each color were hard as would result from application with a brush. As a preparation for the attack, snow was apparently packed and padded on the hull sides for concealment. Apparently, whitewash paint was scarce as it is evident that this medium was applied only to the gun tube and mantlet in a thin, streaky coat of camouflage. This vehicle did not have a coat of *Zimmerit* anti-magnetic mine paste, and thus appears to be a late production tank, manufactured after *Zimmerit* had ceased to be applied. In analysing photographs of other tanks from *schwere-SS-Panzer-Abteilung 501.*, it appears that none of them had the *Zimmerit* coating.

Although snow on the hull sides prevents verification, we estimate that the German National Identity Cross was applied to the hull sides below the turret. Vehicles with similar

Continued on Page 33

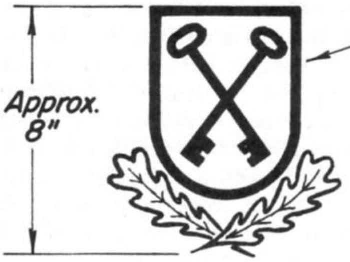

Standard 3-digit identification numbers, red with white outline, to designate 2.Kompanie commander
German National Identity Cross, 13" square, on both sides of turret.
Sand-Tan Primer base paint
200
Dark-Green Overspray with soft feathered edges

Note: 3-digit turret number appears on both sides, forward of cross, and on rear, on escape hatch.

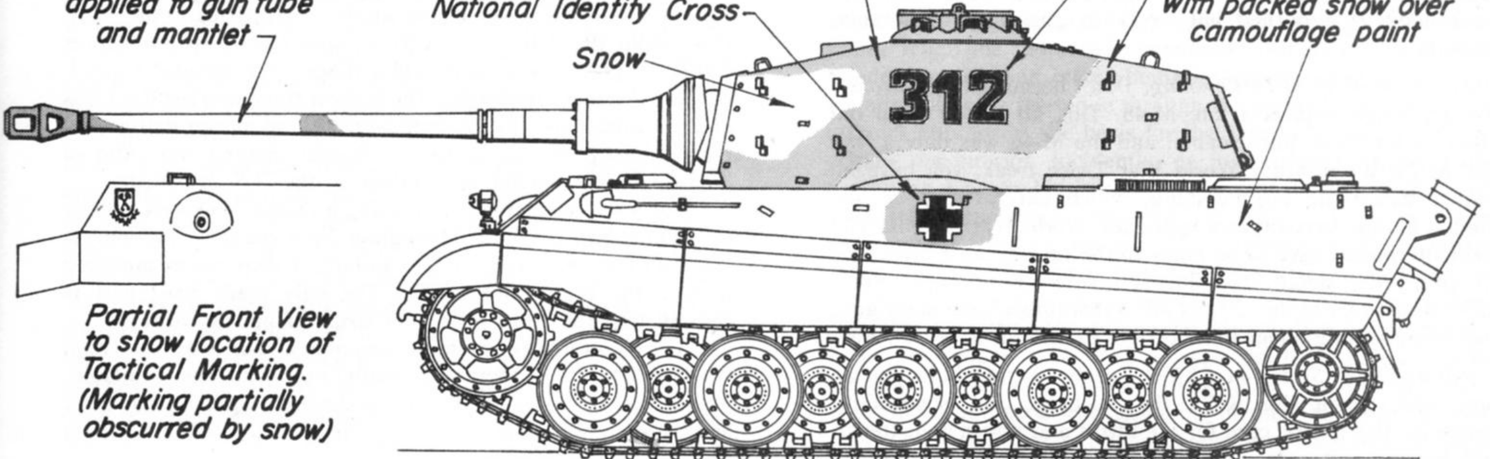
Side View - Panzer VI. "Tiger II." of the 2.Kompanie CO of an unidentified Army heavy tank battalion, Operation "Panzerfaust", Budapest, 16 October 1944

Notes: Tanks used in Operation "Panzerfaust" were all from the 2.Kompanie; all appear to be in new condition. All are "Zimmeritted" heavily on vertical surfaces of hull and turret. No Zimmerit appeared on fender skirts, gun tube and mantlet, hull or turret roof. The cross and numbers were painted over the Zimmerit.

Notes: Tanks of schwere-SS-Panzer-Abteilung 501. do not appear to have the Zimmerit anti-magnetic mine paste. All tanks to have carried spare track sections at front and rear of turret sides apparently. Vehicle shown below was found abandonned by U.S. Army troops.



Tactical Marking of I. SS-Panzer-Korps, used to identify tanks of schwere SS-Panzer-Abteilung 501. Painted on vehicle in white as shown below.


Thick-style 3-digit identification numbers Medium Blue with thin Yellow outline
Sand Tan Primer
Dark Green
Whitewash paint thinly applied to gun tube and mantlet
Suspected location of National Identity Cross
Hull sides covered with packed snow over camouflage paint
Snow
312

Partial Front View to show location of Tactical Marking. (Marking partially obscurred by snow)

Side View - Panzer VI. "Tiger II." of the 3.Kompanie of schwere-SS-Panzer-Abteilung 501. "LSSAH", Ardennes, December 1944.

ARMOR MODELING IN 1:48 SCALE

by William Sanders

Bandai has made quarter-inch modeling respectable. A couple of years ago, 1:48th scale was for airplane modeling types only, and even they weren't too crazy about it. Back when Aurora introduced the first plastic AFV kits in this country, quarter-inch was the only game in town, and despite its obvious advantages - compactness with big detail and low price - it was a bush-league scale that suffered from lack of range. There were some nice kits, Aurora's HVSS Sherman being in some respects more accurate than Tamiya's bigger one, and some types that just weren't available in 1:35th scale - the Churchill, the M-46, and the Japanese Type 97 *Shinhoto Chi-ha* - but the basic problem was lack of range, with the added handicap of an absolute void of decent figures. The only German vehicles at all were a so-so *Tiger II.* and an abominably-bad *Panther*, and that pretty well killed it.

Nowdays, *Bandai* has more German model types out than Guderian could probably name, they're starting on a mouth-watering lineup of American stuff, and they've even fixed us up with a good assortment of figures and accessories. What else is there to say?

Nothing, except that there are still wide gaps in the modeling range, with nothing to speak of in Russian armor and not a lot of British either. You're not really a modeler though if you haven't got at least one or two conversions under your belt. Those of us who go back to *'Before Bandai'* have had to do all this whacking and hacking to have any collections at all; those modelers just getting into quarter-inch scale might like to try a few ideas. These are only general hints; for specific details, you must do some research and use your imagination, but none of these conversions is really hard for any competent modeler.

1. *Bandai Wespe to Wespe Munitionstrager.* The easiest conversion since Constantine decided he rather switch! All it involves is removal of the gun and plating over the slot in the gun shield (which is all that the original conversion really involved) with some of the ammunition boxes from *Bandai's* Artillerymen set used to fill up the interior.

2. *Bandai Maultier to Opel Blitz.* Self-evident! Two kits will be needed to obtain all of the wheels, but you can use the left-over truck body as a burned out wreck to gussy up a diorama, perhaps.

3. *Aurora M-46 to M-26 Pershing.* Don't be misled by Aurora's box art which depicts a late M-48. This kit is the good old M-46...a bit crude but useable, and the M-46 was only a 'hot rod' M-26. If you are a World War Twice freak, you have no doubt missed the big Pershing, which barely made it into combat in time to count as a legitimate World War II. tank. The main alterations have to be made to the rear decking area. File off all of the detail, rebuild, and rescribe the grill work. *AFV/Weapons Profile 32* tells all. Substitute a new main gun, and do something about that horrible excuse for a .50 cal. MG.

4. *Aurora JS-III 'Stalin' to a KV-I.* Nearly a scratchbuilt, but an easy one, given the KV's flat surfaces and squared-off structure. Use plastic card for the turret and upper hull; the kit hull bottom and sides can be used with some cutting and alterations. The main thing is the wheels and tracks, however, the drive sprockets need a bit of altering. If you can afford it, pick up the little *Fujimi* KV-I and use it as a pattern. The KV-II. would also appear simple enough, though purely as a freak-show exhibit. Try a white winter camouflage paint coat with base green showing through here and there. A very impressive model, hard to really botch-up, and a good first scratchbuilding project.

5. *Rebuilding the Tamiya T-34.* This one could have been a nice kit, but it was apparently aimed at the toy market. The tracks and the turret have to go; the rest needs a lot of small detailing, grab irons, etc. Build a new turret from plastic card (flood with liquid cement to give a cast effect.) The kit's gun and mantlet will work all right. Not as difficult as it sounds. The only tracks that are available are those from the Revell T-34/85, cut down on both sides and, of course, shortened; these tracks will still be off a good deal, but at least they present the proper general effect, better than those rubber bands in the box. You can use the same procedure for the *Tamiya* SU-85 which can, of course, be converted into the SU-100.

6. *Aurora Churchill into a Churchill AVRE.* Endless possibilities. A bunch of broomstraws can be used to make a nice fascine. If you model a bridge-carrying AVRE, you'll have to weight the hull in the rear to make it sit right. The 'CS' (or Close Support) variation is another possibility.

7. *Fujimi Comet.* Boy, are you in for it! This thing is so bad that it isn't worth buying. A pure scratchbuilt Comet would actually be easier, using perhaps Aurora Centurion road wheels. In addition, the scale of the *Fujimi* thing is off a bit, but if you unwarily bought one (like me), you can ultimately turn it into something halfway decent with enough patience. The track guards must be replaced entirely, the hull reshaped front and rear, all armament must be replaced, new tracks added (use cut down Aurora Centurions), hundreds of small details added or altered, and I'd figure on loading it with a few strategically-placed external stores, tarps, etc., to cover the stuff you couldn't do anything about! This is the *Fujimi* that gave us that nice 1:76th scale stuff? Anyway, you'll probably have the only British Comet in town.

Several other possibilities suggest themselves, but, as yet, I haven't tried them. First, the Aurora JS-III. back to the JS-II. How about the Aurora Type 97 *Shinoto Chi-ha* to the earlier *Chi-ha* (replace the turret). Then there's the *Bandai* Tiger I. converted into a *Sturmtiger*. The *Bandai Hanomag* halftrack has endless variations; the engineer vehicle, the mortar halftrack... there's a superb mortar in the *Bandai* infantry set. And of course, there's similar conversions to the U.S. halftracks.

For a real challange, try making a Dodge Weapons Carrier or a Command Car on a Monogram Jeep chassis - the wheels work out just about right in size and the chassis can be modified to give the correct wheelbase. The only really hard part is constructing the front grill from strips of plastic card.

For an interesting diorama, combine a vehicle or two with a crashed aircraft - there are many excellent kits available. *Fujimi's Bf-109* is so nice that it's a shame to wreck it, but mine looks great on a spackle 'desert' with a *Sd.Kfz.232* 8 wheeled armored car passing by.

In short, there's been a lot of changes in good old quarter-inch scale. Why not give it a try....you'll probably like the results.

MODELING Bandai's 1:48th Scale .ELEFANT'

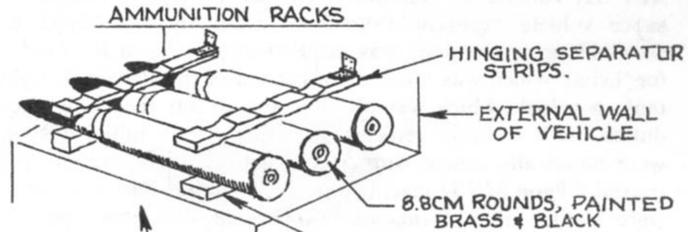
by Duane Thomas

I must admit that, up to this time, I really haven't been interested in modeling in 1:48th scale! To be frank, I've spent most of my time in 1:35th scale modeling, making those larger Japanese kits with all of the nice detail. When the editor asked me to model Bandai's *Jagdpanzer 'Elefant'* in 1:48th scale, I was sceptical about the project, for I remembered those inaccurate and poorly detailed kits of my youth. Still, I thought that it would be a diversion, and that it would be one way to make a model of a vehicle that hasn't appeared in any other scale. To say that my modeling of one 1:48th scale kit has changed my modeling life would be an overstatement, but I must admit that I've now become interested in Bandai's German vehicle range, and that I will from now on be mixing my modeling into two different scales. In short, while I'm not converted into a fanatic, I can see the many possibilities ahead in making those nicely detailed, smaller scaled offerings from the folks at Bandai.

Bandai's *Jagdpanzer 'Elefant'* is an excellent model to start with to familiarize one with 1:48th scale. It's large by 1:48th scale standards, and thus I started by feeling at home with a larger sized model. In fact, it took some memory to realize that I was actually working in a smaller scale at first. Basically, the kit went together well (except as I note below) and was most enjoyable to work on. Bandai must be complemented on their planning of the model, since they have left open numerous superdetailing ideas by their very method of construction. For example, the *'Elefant'* construction is so staged that you could model one of the first prototypes, without the external gun shield; one of the vehicles employed at Kursk, with the external gun shield but without the bow machine gun; or one of the late-war vehicles (that were employed in Italy and France), with the bow machine gun. I chose to model the latter style vehicle, adding *Zimmerit* to duplicate these late vehicles as accurately as possible.

The kit's instruction sheet is simple to follow, and can be followed directly to produce a hand painted basic version of the *Elefant*. However, you've got to deviate from the instruction's sequences if you're striving for complete accuracy and detailing. I'll explain.... You've first got to decide on how much detailing you're going to perform. Bandai supplies a tremendous amount of internal detailing that really intrigues you at first glance. There's a pair of finely detailed engines, a pair of final drive electrical motors that faithfully duplicate the originals, an *8.8cm* gun that really looks good and a completely detailed driver's and radio operator's compartment. In fact, there's almost too much detail, since a goodly amount of it will probably never show on your model unless you plan to make a 'cut-a-way' to display the interior. You've got to make a basic decision on how much of the vehicle's interior you plan to show... I decided to leave the driver's and radio operatopr's hatches open to display their compartment. I also decided to open the upper superstructure hatches and to open the large, circular rear hatch... this allowed the maximum amount of detail to be shown. I left the engine hatches closed, largely because Bandai opened up the wrong hatches in the first place. The two side hatches or covers which Bandai supplies as separate pieces are not the engine access hatches! They are, instead, the covers over the saddle fuel tanks, which Bandai left out of the kit for some reason. If you leave these covers open, you've got to add the saddle fuel tanks and their filler tubing. To properly display the twin engines, you've got to open up the large center hatch which sits over the centerline of the vehicle. Since this would involve extra work and probably a second kit, I decided to leave the engines completely covered. In fact, I could probably have left the engines out of the model altogether, since they would be all but impossible to see.... However, I was overcome by all that detail, and so I installed them. In a way, it's too bad that you can't adequately display the engines as they are highly accurate and finely detailed.

After assembly of the basic hull and suspension, and prior to installing the driver's and radio operator's controls, I airbrushed the vehicle interior with a light cream white, which is the correct interior color for German vehicles, instead of the light gray that Bandai lists. At this time, the interior color was also sprayed on the inside of the upper superstructure. Next came the interior detailing, such as adding the *8.8cm* gun, the flooring and seats and the rear electrical motors. All were painted prior to assembly. The ammunition boxes provided by Bandai were discarded as they are incorrect.... these would have been very difficult to remove shells from. The correct racks, as sketched below, were made from scrap plastic. I chose to picture my *Elefant* during the act of ammunition replentishment, and so I substituted the corrected shell racks partially filled. When the diorama is eventually complete, it will have wooden ammunition crates being unloaded and the rounds of ammuntion being passed in through the open rear hatch. In my rational, this forms the basis for the rear hatch being open to display the interior. Incidently, no information is provided in the kit on how to hinge this rear escape hatch. In the end, stretched sprue was cemented together forming a hinge arrangement. During this part of the construction, the upper superstructure was placed in the assembled position on top of the low hull, and it was discovered that there was some difficultly in getting the two assemblies to line up accurately. To get the proper fit, a small amount had to be removed from the rear of the engine hood (A8). This was the only real problem encountered with assembly of the basic vehicle, and, after some minor carving, the problem was easily solved. There were several small modeling details (or additions) that I performed at this time. Since the driver's and radio operatror's hatches were to be left in the open position (to show the interior), a correction had to be made on the driver's hatch....


AMMUNITION RACKS
HINGING SEPARATOR STRIPS.
EXTERNAL WALL OF VEHICLE
8.8CM ROUNDS, PAINTED BRASS & BLACK
BASE STRIPS, SUPPORTING AMMUNITION
FENDER

Continued on Page 32

The German Full-Tracked Armored Car Company

Of all the different types of German reconnaissance units, the one described here is perhaps the most 'mysterious'. While it is possible to determine the reasons for creating this type of unit, and the methods of tactical empoyment of the unit, it has proven almost impossible to determine which of the German *Panzer-Divisionen* were provided with this type of organization.

The 'Type B' armored reconnaissance company was created to provide the *Aufklärungs-Abteilung* (or Reconnaissance Battalion) with an armored car company that possessed the highest possible mobility over difficult terrain. It is obvious that the four and heavier eight wheeled armored cars lacked cross-country agility, and the halftrack reconnaissance vehicles, while superior to the all-wheel configurations, did not offer the kind of performance needed in traversing Russian Front mud and snow. This became the reason and the rational for creation of a specialized full-track reconnaissance vehicle on the chassis of what was otherwise an obsolete tank. As previously outlined, the *Aufklärungs-Abteilung* was made-up of company-sized 'building blocks', and the 'Type B' organization could be assigned to divisional reconnaissance battalions which had an obvious need for a unit with more than adequate mobility in crossing difficult terrain.

The full-tracked armored reconnaissance vehicle that was employed in the 'Type B' organization could be either one of two fairly similar types. The first of these was the *Aufklärungspanzer 38(t)*, a conversion of the then-obsolete Czech *Panzer 38(t)* light tank. Drawings of this vehicle (in 1:32nd scale), as well as a brief developmental history, were presented in *AFV-G2*, Volume II., Number 4. The second type of reconnaissance vehicle that could be used to equip the 'Type B' reconnaissance company was the *Panzerspähwagen II. 'Luchs'* (or 'Lynx), which was a major conversion of the *Panzer II.* light tank, a vehicle which was obsolete for all but reconnaissance duties. Both of these vehicles, at least in their initial design, were identically armed wuth turret-mounted *2cm* cannon and coaxial *7.9mm MG34* machine guns. In addition, both vehicles were similar in performance. The organization chart on the opposite page illustrates a unit equipped with the *Aufklärungspanzer 38(t)*. It is obvious from the notes at the end of the original German *KStN* that a company of this type did not have 'mixed' equipment; it was instead totally equipped with either one of the vehicles to permit better maintenance.

The Armored Reconnaissance Company Type B was organized under *KStN 1162b* with 2 officers, 50 non-commissioned officers and 56 enlisted men. The company was organized, under Guderian's *'frei Gliederung'* concept, with a Headquarters Section and four nearly identical combat platoons, which performed the necessary scouting tasks.

The Headquarters Section was equipped with one combat reconnaissance vehicle, to be used by the Company Commander to control his unit during combat situations, two light cars (typically the *Volkswagen Typ 82 Kübelwagen*, as shown here, although substitute vehicles often were used), and four tracked motorcycles (*Kettenkräder*) for messenger duties. One of the light cars was used by the Company Commander as an administrative vehicle, while the other car, carrying a portable radio set, carried the communications and the medical sergeants. This small Headquarters Section served to control the company and to communicate with the platoons and the parent battalion headquarters as required. The administrative, mess, supply and maintenance functions of the unit were assumed by the battalion's *Versorgungs-Kompanie* (or Supply Company) as they were needed; this preserved the company's personnel for its combat missions and simplified the administrative work force of the battalion into one easily handled company sized unit.

Each of the four combat Reconnaissance Platoons was equipped with six combat reconnaissance vehicles, which were organized into three, two-vehicle Reconnaissance Sections. The First Section of each Platoon was led by the Platoon Leader, while the Second and Third Sections were commanded by non-commissioned officers. In the First and Second Platons, officers served as Platoon Leaders; generally these were *Leutnante* (or 2nd Lieutenants). One of these officers also served as the company's 2nd-in-command, so that command could be effectively carried on if the Company Commander became a casualty. The Third and Fourth Reconnaissaance Platoons were led by senior non-commissioned officer Platoon Leaders, who, quite often, were combat qualified for their positions but who, for one reason or another, could not be commissioned in the German Army. Additionally, there seemed to be a general shortage of junior officers in the *Wehrmacht* due to the length of pre-commissioning schools and requirements for posting to the officer candidate schools in the first place. This was a problem not solved during the war.

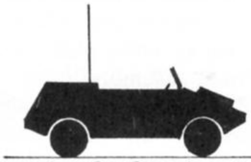
While it is not known specifically all of the *Wehrmacht* or *Waffen-SS Panzer-Divisionen* reconnaissance battalions that were assigned 'Type B' full-tracked companies, photographs show that both the *Panzerspähwagen II. 'Luchs'* and the *Aufklärungspanzer 38(t)* were employed on both the Western and the Russian fronts during 1943 to 1945. An example of the *Panzerspähwagen II.* was captured by the British in Normandy in 1944; this vehicle is now on display at the Royal Armoured Corps Museum, Bovington Camp, England. A supplement (*Anlage 8*) of F. M. von Senger und Etterlin's book, *Die Panzergrenadiere* lists the complete organization of the *Luftwaffe Fallschirm-Panzer-Division 'Hermann Göring'* in September 1943. This supplement was taken from original *Wehrmacht* documents. The organizational diagram shows that *Panzer-Aufklärungs-Abteilung 'Hermann Göring'*, as one of its six companies, had a *Panzerspäh-Kompanie 'Luchs'*. (One should remember that the *Hermann Göring* division was the largest and most heavily armed division in the *Wehrmacht*.) Of course, during this time period, this German division was on the Italian front. We have found no photographic evidence to verify the existance of the 'Type B' unit as a part of the *Hermann Göring* division.

In retrospect, the German full-tracked armored reconnaissance company (Type B) offered little except increased mobility over the almost identically organized light halftrack (*Sd. Kfz. 250/9*) or light armored car (*Sd. Kfz. 222*) companies. Both of the vehicles employed in this organization were variations on light tank chassis and cannot be considered prominent armored vehicles. This perhaps explains why so little information on this form of organization has survived.

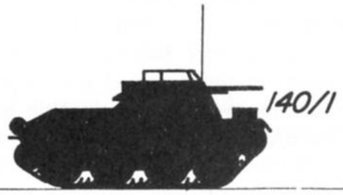
PANZERSPÄH-KOMPANIE „B"

KStN 1162b of 1 March 1944

HEADQUARTERS SECTION

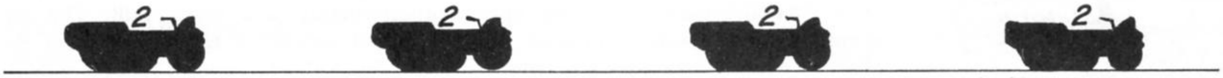


1 NCO Section Ldr.-Radioman (MP)
1 NCO Medical Sgt. (P)
1 EM Driver (R)



1 NCO Signalman (P)
1 EM Gunner (P)
1 NCO Driver (P)

1 OFF Company Commander (P)
1 EM Messenger (R)
1 EM Driver (R)



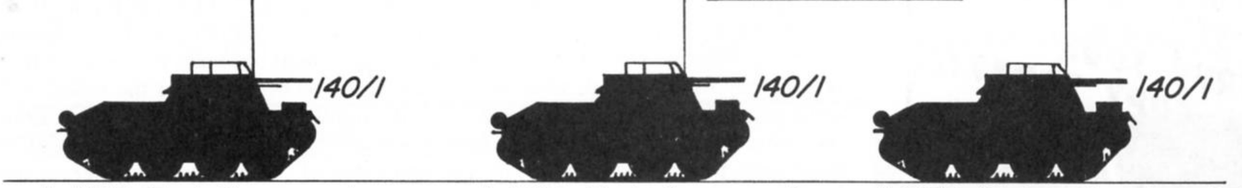
1 EM Messenger (R)

1 EM Messenger (R)

1 EM Messenger (R)

1 EM Messenger (R)

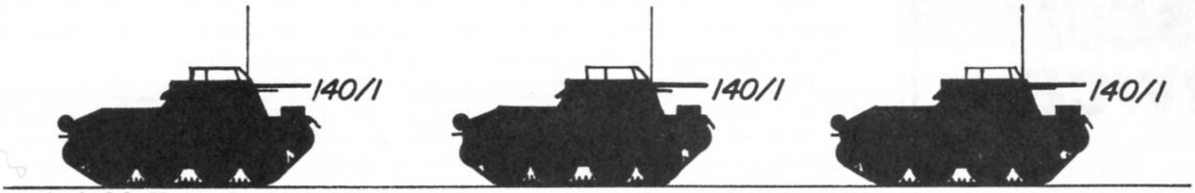
FIRST PLATOON



1 NCO Tank Commander (P)
1 EM Signalman (P)
1 EM Gunner (P)
1 NCO Driver (P)

1 NCO Tank Commander (P)
1 EM Signalman (P)
1 EM Gunner (P)
1 NCO Driver (P)

1 OFF Platoon Leader - 1st Section Leader (P)
1 EM Signalman (P)
1 EM Gunner (P)
1 NCO Driver (P)



1 NCO Tank Commander (P)
1 EM Signalman (P)
1 EM Gunner (P)
1 NCO Driver (P)

1 NCO Tank Commander (P)
1 EM Signalman (P)
1 EM Gunner (P)
1 NCO Driver (P)

1 NCO 2nd Section Leader (P)
1 EM Signalman (P)
1 EM Gunner (P)
1 NCO Driver (P)

SECOND PLATOON is identical to the FIRST PLATOON.

THIRD PLATOON and FOURTH PLATOON are identical to the FIRST PLATOON, except that the Platoon Leaders are Senior NCO's.

In this KStN, alternate equipment for the Aufklärungspanzer 38(t) shown is listed as the Panzerspähwagen II. "Luchs", with no change in personnel shown.

Modeling... Bandai's 1:48th Scale 'ELEFANT' (Continued from Page 29)

this consisted of the installation of the driver's periscopes. Bandai provides the external periscope fittings but ignores the interior vision blocks. These were created from thin pieces of sheet plastic with small amounts of 'green stuff' being used to fill the interior of the blocks. With a little care, an accurate representation was created. After this detailing, both hatches were painted and set aside to dry. After drying, I installed 'glass' in the external periscope apertures, using white glue which dries clear. The hatches were then set aside to wait until final assembly.

After the *Elefant* was construc ted to this stage, *'Zimmerit'* was carefully applied to all vertical surfaces on the lower hull and part-way up the sides of the superstructure. I used 'green stuff', carefully spread into a thin layer, using lacquer thinner to assist in the spreading of the material. Lines were then carefully scribed into the partially dried 'green stuff' using an Xacto knife blade. I found that this was a little difficult since I was more accustomed to working in 1:32nd or 1:35th scale. Remember that the scribed lines should be closer together in 1:48th scale.

After the *Zimmerit* coating had dried thoroughly, a base coat of sand-tan primer paint was airbrushed onto the upper superstructure and lower hull. The hatch openings were carefully masked off with small scraps of tape to prevent paint overspray from getting into the white interior. Since the full-length fenders would be added last (after installation of the tracks), they were also painted at this stage.

After painting, I completed the *Elefant* by adding all of the small parts that had had to wait until final assembly. Hatches were added to the upper superstructure and hull and the rear escape hatch was attached via its hinging mechanism to the interior of the superstructure. When all of the small details had been added, the superstructure and the hull were cemented together and set aside for drying. While the drying was taking place, I worked on the tracks, painting and weathering them prior to assembly. One of the unfortunate things about the vinyl tracks used by Bandai is that they're one-sided, with virtually no detail on the inside of the track. My tracks were painted steel gray, with 'Rub 'n Buff' highlights rubbed onto the external track ribs where ground contact would have polished the metal. Small amounts of red rust color were brush painted into the recessed areas of the track shoes where it would be best seen. After all this painting, the tracks were assembled on the model; I carefully notched out the holes where each track strip was assembled in order to get a little more slack... creating a more realistic track sag. Next, the fenders were cemented in place and I was ready for the final paint coats. Using a fine air brush tip, I dappled the exterior sand-tan paint coat, using Dark Green and Red Brown colors. When thoroughly dry, the vehicle's German crosses were handpainted over the *Zimmerit* coating on the hull sides. I left any form of identification numbers off my model, since most of the late-war vehicles seemed to lack these numbers.

This completed my *Jagdpanzer 'Elefant'*. I enjoyed making the kit; it assembled well and easily, using a little horse-sense to ease construction and painting problems. The resulting model looks fine and is now on my modeling shelf as a welcome addition to the bigger but not better detailed 1':35th scale models. Rest assured, this is not the last Bandai model that I'll build. I may not be converted (yet) but there's a 1:48th scale diorama that I'm just itching to try....

Industry Report......

Probably the biggest industry news this issue is the announcement of the two latest releases from Monogram. These consist of a German Sd.Kfz.232 8-wheel armored car and a German 3.7cm Flakpanzer 'Ostwind'. Preliminary looks at both kits indicate that the 8-wheel armored car is extremely well-detailed and is at a most resonable price (compared to imported kit prices these days). The 'Ostwind' is most welcome as it gives us a good 3.7cm Flak 37 anti-aircraft gun, opening up many more conversion possibilities. We'll include more on these kits in the next issue.....

We received a nice letter from the Peerless Corporation of Philadelphia, PA., who wrote to inform us that they are the exclusive U.S. distributor for the Max model kits mentioned in the last issue. The available models are: an M-6 Gun Motor Carriage (which was a 37mm AT gun mounted on the rear of a Dodge ¾-ton truck), the Dodge ¾-ton Weapons Carrier (which was reviewed last issue), a Dodge ¾-ton Command & Reconnaissance Truck, a Dodge 1½-ton Cargo Truck, and the earlier Max kits (an M-26 'Dragon Wagon' Tank Transporter and a 155mm Howitzer). We'll be reviewing some of these kits in the next issue.....

Two of the latest items in GHQ Micro-Armor's 1:285 series of miniature wargaming vehicles continue their coverage of Soviet and U.S. equipment. These are the SU-122 Assault Gun (built on the T-34 tank chassis) and the M-4A4 Sherman, a vehicle which was supplied to Russia under Lend-Lease. These sell for $2.45 per box of 5 miniature vehicles. Turrets are separate on the Sherman, which features the early VVSS suspension, and the guns are separate on the SU-122 (and need to be epoxied in position). As usual, detail on these wargame vehicles is supurb.

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The Yom Kippur War (Continued from Page 13).

and came near to causing disaster. On the Arab side, the centralized command on the Suez Front, the constant changes in command on the Syrian Front, the loss of coordination between the Arab allies and the failure of adjoining units to exchange intelligence kept them from the complete victory that might have been theirs. It can also be pointed out that intervention of the major powers kept the Israelis as well from a major victory.

So, tactically, the war can be considered a draw. Strategically, the possibility of relative peace for this troubled area finally appeared within sight. The real losers were the nations of the world hit by the Arab use of oil as a strategic weapon, the effects of which will be felt for a long time to come.

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The Baron's Bookshelf (Continued from Page 25)

(who, for some reason, is not given credit for his work). The photographs, in the majority of cases, are clear and sharp, and there are a minimum of photos of that well-known *Tiger* at Aberdeen Proving Ground. Text is at a minimum, and the photo captions for the most part are concise and accurate. Of special interest are the good quality photos of tanks of *schwere-SS-Panzer-Abteilung 501*. in France during the spring of 1944. These are excellent. The only fault that I could find is in following the section on Michel Wittmann... seemingly, there's a couple of photos out of place.

This slim book can be recommended to every German tank enthusiast. There's a lot of value for the money with the high quality and unusual photographs.

Color 'n Camouflage; German Tiger II.'s (Continued from Page 26)

markings feature a style of cross wuth thick white outer edging. It should be stressed though that snow on the tank's hull sides prevents us from verifying the location and style of the cross. On the hull front, the standard *I. SS-Panzer-Korps* tactical marking was painted in white in the upper left corner; this marking is also partially obscured by snow in the photograph. Almost all of the tanks from this *Waffen-SS* tank battalion carried this marking in this location, although the style of the tactical symbol seemed to vary a good deal, depending upon the individual painter. Judging from other photographs, apparently this marking did not commonly appear on the rear of the tank hull. It is interesting to note that another tank from this same *3.Kompanie* is now on display at Aberdeen Proving Ground. Color photos, taken shortly after the vehicle's arrival at the Proving Ground verify the colors of the turret identification numbers as well as the tactical markings which were in a slightly more stylized configuration. A number of *Tiger II* heavy tanks were recovered by U.S. Army troops after the 'Bulge' and it appears that a number were shipped to the United States... however, only the one vehicle at Aberdeen and one vehicle in Germany (which was returned to the Germans) and one in Belgium remain today of the tanks of *schwere-SS-Panzer-Abteilung 501.*

EDITOR'S NOTES: This issue does not contain the regular installment of Dr. Pignato's 'AFV's of Italy', due to last-minute production difficulties. Rather than hold-up the issue until the installment was completed, we made the decision to publish without it. We will resume the 'AFV's of Italy' in the next issue.....

We learned this past week of the death on November 23rd of noted author **Cornelius Ryan**. Mr Ryan's three major accounts of World War II. battles were all hugh international best sellers, died after a long fight against cancer. He was 54. Ryan's latest book is titled 'A Bridge Too Far' and is the story of the unsuccessful attempt to land airborne troops of Arnhem, Holland.

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